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TOBACCO AND ULCER DYSPEPSIA*

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It is a common practice to advise patients suffering from peptic ulcer to use less tobacco. This advice does not appear to rest on any secure basis, and it therefore seemed useful to find out if any relationship could be demonstrated between smoking habits and the severity of dyspepsia. The following observations form part of a follow-up survey of patients who had suffered acute perforation of a peptic ulcer from one to five years previously (Illingworth *et al.*, 1946). These patients were recalled for interview and were closely and persistently questioned. Our data are therefore as exact as we could make them. Of the 473 patients questioned 451 were men and 22 women. Their ages ranged from 20 to 64 years at the time of the follow-up; patients beyond these age limits were excluded, as their financial state might unduly influence their consumption of tobacco.

Two methods of inquiry were followed. First, we sought a relationship between the consumption of tobacco and the severity of symptoms during the twelvemonth prior to the follow-up. Secondly, we tried to determine if those patients who had reduced their tobacco consumption after perforation had less dyspepsia than those whose smoking was unchanged or increased.

Cigarette Smoking and Severity of Symptoms

Table I shows the relationship between cigarette consumption and the severity of symptoms during the twelvemonth before questioning.

TABLE I.—*Number of Patients (aged 20–64 years) by Cigarette Consumption and by Severity of Symptoms*

Severity of Symptoms	Cigarette Consumption per Day		
	0–10	11–20	21 or More
None	98 (84·3)	71 (78·3)	19 (25·4)
Mild	68 (71·3)	71 (66·2)	20 (21·5)
Severe	46 (56·4)	55 (52·5)	25 (17·1)

$\chi^2 = 10{\cdot}82$, P less than 0·05.

The figures in parenthesis are the numbers of cases which would be expected if cigarette smoking were independent of the severity of symptoms. It is seen that more light smokers were symptom-free and more heavy smokers had severe symptoms than would occur if smoking and dyspepsia were unrelated. Statistical analysis shows that these differences would arise by chance less often than once in 20 such experiments, and it can be inferred that there is indeed a relationship between cigarette smoking and the severity of symptoms.

Pipe Smoking and Severity of Symptoms

Table II gives a comparison of the consumption of pipe tobacco and the severity of symptoms in the same way. It will be seen that the differences between the observed values and the expected values are to the advantage of the pipe smokers. Thus fewer non-smokers were symptom-free and more heavy smokers were symptom-free than would be expected if there were no relationship between pipe smoking and severity of symptoms. The differences are not large, and statistical analysis shows that this result might occur by chance about once in 10 such experiments. It can be inferred that the evidence is suggestive of an association between pipe smoking and mildness of symptoms.

TABLE II.—*Number of Patients (aged 20–64 years) by Consumption of Pipe Tobacco and by Severity of Symptoms*

Severity of Symptoms	Pipe Tobacco Consumption per Week		
	None	1–2 oz. (28–56 g.)	3 oz. or more (85 g.)
None	159 (165·0)	13 (12·3)	16 (10·7)
Mild	139 (139·5)	11 (10·4)	9 (9·1)
Severe	117 (110·5)	7 (8·3)	2 (7·2)

$\chi^2 = 7{\cdot}26$: P just exceeds 0·1.

These results are in sharp contrast. Heavy cigarette smoking seems to be associated with severe symptoms, but pipe smoking with mild symptoms. Tobacco, as such, can hardly be responsible for this finding. Several explanations could be offered: it might be that cigarettes are harmful because of the saltpetre they contain; or it might be that cigarette smokers differ in constitution from pipe smokers. We believe, however, that the correct explanation is the simple one that older patients tend to have mild symptoms and as a group comprise few cigarette smokers and many pipe smokers. The evidence on which these statements are made is given below.

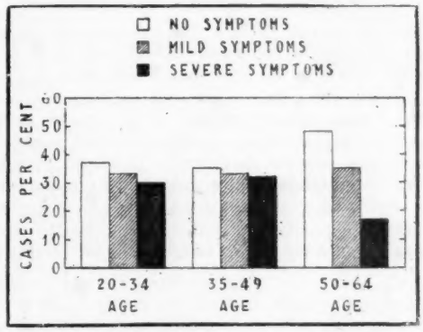

FIG. 1.—Relationship between age and severity of symptoms in patients suffering perforation 1–5 years previously.

TABLE III.—*Relationship between Age and Severity of Symptoms in Patients suffering Perforation 1–5 years previously (See Fig. 1)*

Severity of Symptoms	Number of Patients		
	Age 20–34 years	Age 35–49 years	Age 50–64 years
None	45 (37%)	74 (35%)	69 (48%)
Mild	39 (33%)	70 (33%)	50 (35%)
Severe	36 (30%)	66 (32%)	24 (17%)
Total	120 (100%)	210 (100%)	143 (100%)

* This investigation was carried out under the auspices of a Committee on Sickness Records set up in Glasgow by the Nuffield Provincial Hospitals Trust.

It is seen from Fig. 1 and Table III that the symptoms in the group aged 50–64 years are milder than in the younger age groups. Thus 48% of the older patients are symptom-free, as against 35% of the younger, while only 17% of the older group have severe symptoms, as against 30% of the younger.

Again, it is seen from Fig. 2 and Table IV that cigarette consumption is less in the group aged 50–64 years than in the younger age groups. Thus 56% of the older patients are light smokers, as against 40% of the younger, while only 32% of the older group are moderately heavy smokers, as against 45% of the younger.

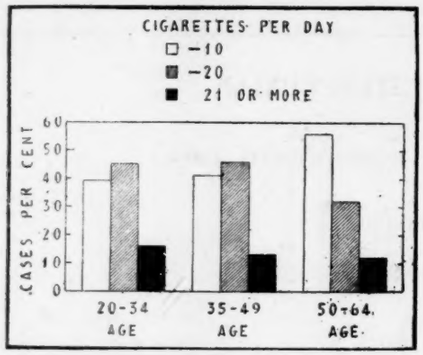

FIG. 2.—Relationship between age and cigarette consumption in patients suffering perforation 1–5 years previously.

TABLE IV.—*Relation between Age and Cigarette Consumption in Patients suffering Perforation 1–5 years previously (See Fig. 2)*

Cigarettes per Day	Number of Patients		
	Age 20–34 years	Age 35–49 years	Age 50–64 years
–10	47 (39%)	85 (41%)	80 (56%)
–20	54 (45%)	97 (46%)	46 (32%)
21 or more	19 (16%)	28 (13%)	17 (12%)
Total	120 (100%)	210 (100%)	143 (100%)

TABLE V.—*Relationship between Age and Pipe Smoking*

Age	No. of Pipe Smokers
20–34 years	6 (among 120 patients)
35–49 ,,	20 ,, 210 ,,
50–64 ,,	32 ,, 143 ,,

Lastly, it is seen from Table V that the oldest group includes many pipe smokers, for no fewer than 32 of our total of 58 pipe smokers belong to the age group 50–64 years.

We conclude, therefore, that the relationship between smoking and dyspepsia is unlikely to be one of cause and effect; and we suggest that cigarette smokers tend to have severe symptoms because they are in the main young,* and that pipe smokers tend to have mild symptoms because they are in the main old.

Change in Smoking Habits and Severity of Dyspepsia

If smoking were harmful to patients with peptic ulceration, then it should be possible to show that better health is enjoyed by those who have reduced their tobacco consumption than by those whose smoking has been unchanged or increased. Tables VI and VII provide the data necessary for cigarette smokers and pipe smokers respectively. In these tables the severity of symptoms refers to the twelvemonth preceding examination, and the change in tobacco consumption refers to the difference between the consumption before perforation and that at the time of examination.

* We have verified that the data of Table I can be regarded as homogeneous if age is allowed for, thus: using the same classification for patients aged 20–49 years, $\chi^2=6.48$, P about 0.2; and for patients aged 50–64 years, $\chi^2=3.48$, P about 0.5; the combined value of $\chi^2=9.96$, P about 0.3.

TABLE VI.—*Number of Patients (aged 20–64 years) by Change in Cigarette Consumption and by Severity of Symptoms*

Severity of Symptoms	Cigarette Consumption		
	No Change	Increased at Follow-up	Decreased at Follow-up
None	124 (125·8)	17 (12·1)	47 (50·1)
Mild	104 (105·5)	10 (10·4)	45 (43·1)
Severe	85 (81·7)	4 (8·5)	37 (35·8)

$\chi^2 = 4{\cdot}88$, P about 0·3.

It is evident from Table VI that there is little difference between the observed numbers of patients and the numbers which would be expected if changes in cigarette consumption and severity of symptoms were unrelated, and statistical analysis indicates that this result might occur by chance once in every three such experiments.

TABLE VII.—*Number of Patients (aged 20–64 years) by Change in Consumption of Pipe Tobacco and by Severity of Symptoms*

Severity of Symptoms	Consumption of Pipe Tobacco		
	No Change	Increased at Follow-up	Decreased at Follow-up
None	169 (170·2)	7 (5·1)	12 (12·7)
Mild	143 (143·8)	3 (4·4)	13 (10·8)
Severe	116 (114·0)	3 (3·5)	7 (8·5)

$\chi^2 = 3{\cdot}44$, P about 0·5.

Table VII shows, in the same way, that there is no evidence that increased pipe smoking is harmful. The difference between the observed and the expected numbers could easily be the result of chance. It must, however, be conceded that the number of pipe smokers in the investigation is too small to carry conviction.

It can be concluded that neither in the case of cigarette smoking nor in the case of pipe smoking is there any evidence that changes in tobacco consumption influence the severity of symptoms.

Comment

We are aware of the possible criticism that our data are biased by self-selection, on the ground that patients with severe dyspepsia may smoke little while those who are symptom-free have nothing to restrain them from smoking as heavily as they wish. Self-selection of this kind (light smokers tending to be selected from among the severely dyspeptic, and heavy smokers from among the symptom-free) might obscure the relationship we set out to investigate.

However, the importance of self-selection is probably not great, for the following reasons:

(1) If self-selection were important, it would be reasonable to expect a non-homogeneous distribution in our tables, whereas it has been shown that the distribution is homogeneous when age is allowed for.

(2) In our tables dealing with alterations in tobacco consumption (Tables VI and VII) it will be seen that smoking habits are relatively stable. Thus the majority of patients either smoke as much as before perforation or remain non-smokers. Of the few who have indeed altered their smoking, there is no evidence that it is those with severe dyspepsia who are smoking less or those without dyspepsia who are smoking more.

Summary

A group of 473 patients who had suffered acute perforation of a peptic ulcer were recalled for examination and were closely questioned about their smoking habits.

Heavy cigarette smoking was associated with severe symptoms, but pipe smoking with mild symptoms. It is suggested that the relationship between smoking and severity of symptoms is indirect and depends upon age: symptoms tend to be severe in the young and mild in the old; and cigarette smokers are in the main young, while pipe smokers are in the main old.

There was no evidence that increases or decreases in tobacco consumption influenced the severity of symptoms.

REFERENCE

Illingworth, C. F. W., Scott, L. D. W., and Jamieson, R. A. (1946). *British Medical Journal*, **1**, 787.

ELECTRO-CONVULSION THERAPY IN 301 PATIENTS IN A GENERAL HOSPITAL*

WITH SPECIAL REFERENCE TO SELECTION OF CASES AND RESPONSE TO TREATMENT

BY

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In this country psychiatric patients have rarely been treated in general hospitals under exactly the same conditions as other medical or surgical cases. Some indication of the possibilities of this branch of psychiatry has been given already (Sands, 1943), and the results bear comparison with any in general medical wards (James, 1945). One of the chief methods of physical treatment employed—convulsion therapy—has been the subject of numerous reports during the last nine years. Most of these have been from the mental hospital point of view—concerned mainly with the results, risks, and technical modifications appropriate to the more severe states of psychotic depression. The majority of depressions in general hospital psychiatric wards are of a different pattern (see later), requiring an altered plan of treatment. Before treatment they need special attention to differential diagnosis for the elimination of all those conditions whose superficial resemblance enables them to be covered by the term "depression." Excepting a few—e.g., Stockings, 1944; Frank, 1945—most publications discuss the effects of convulsion therapy with little regard for the wide range of conditions involved. Since only a section of the total range of depressive states can be specifically treated by convulsion therapy, errors are not infrequent, with aggravation of illness and waste of effort. The issue is further confused by the profuse descriptive terminology linked with varieties of depression. Labels such as melancholia, reactive or endogenous depression, psychotic, psychoneurotic, agitated, involutional, psychopathic, anxiety depression, etc., are some of those encountered.

Concerning the question of diagnosis, textbooks necessarily stress the characteristic qualities of each reaction type, and unwittingly one comes to expect the illness in "pure culture" as it were—e.g., either schizophrenic or depressed. In actuality, the patient usually presents no full-fledged symptom-complex running true to a particular reaction type. Like the human society of which he is an individual member he shows but one phase in the evolution of a process, even if a pathological one. In the early stages of the process several abnormal personality trends may be apparent, and in different situations and times differing impressions will be gained of what may ultimately prove to be the main diagnosis. Later, as the evolution of the illness proceeds, condensation of the clinical picture tends to occur, narrowing down to one rather obvious reaction type. Perusal of the early records of a chronic case will often demonstrate this process of diagnostic "purification," the complicated and uncertain diagnosis of recent illness moving, sometimes regressing, towards the single pathological type. In all cases incapable of early recovery this process is going on in greater or lesser degree. It is essential to recognize it in order to understand many of the clinical effects of convulsion therapy in those early cases of a few weeks' or months' duration which are the special concern of this paper.

Depression in a mental hospital patient is generally characterized by radical personality change and considerable inaccessibility. The diagnostic field is covered, to a large extent, by manic-depressive, recurrent, and involutional types, depressed G.P.I.s, pre-senile and arteriosclerotic psychoses, and occasionally early schizophrenias. By contrast, the subjects of depression seen in the general hospital or out-patient department in an earlier or milder phase of the same pathological process retain more of their original personality and are more accessible; questions of certification infrequently arise, and socially all are treated on the same footing as medical or surgical patients. Table I shows the different trend in diagnosis of the general hospital depressive states. Less than 25% can be diagnosed as "manic-depressive, involutional, or recurrent." The majority either are simple, endogenous, or reactive states or are associated with neurotic or psychopathic complications. A few are pre-schizophrenic. Generally their personalities remain well preserved and questions of certification hardly arise. The response of these patients to convulsion therapy, while often as satisfactory as in the more advanced psychotic depression, soon showed the need for special care and some reorientation in diagnosis and case selection. In 1934 Lewis, writing on the less advanced forms of depressive illness at the Maudsley Hospital, said, "Pure syndromes and reaction types are less and less often found as more careful examination of the patient and his illness is made." One of the consequences of such difficulties is that many of the cases admitted to military mental hospitals as depressive psychoses are often not psychotic but acute reactive neurotic disturbances (Stockings, 1944). Conversely, in a neurosis centre it is not uncommon to find cases admitted as neurotic proving to be less severe forms of psychotic depression, even allowing for those termed neurotic for administrative reasons. A similar situation prevails with civilians.

However, such apparent contradictions and multiple patterns of reaction are natural enough, remembering the possibilities of pathological and non-pathological variations in the personality; but from the therapeutic aspect it is imperative to decide which is the dominant pattern or personality deviation responsible for the maintenance of the patient's illness and which are of secondary significance. The mere intensity of symptoms is no reliable guide. In deciding, we need, more than ever, all relevant knowledge of the personality prior to breakdown, and of the transition from normal to pathological responses. The practical importance of all this is seen when a few convulsions clarify the uncertain diagnosis rather too drastically. Instead of the usual remission there may be further depression, confusion, anxious or hysterical symptoms, incontinence, or no demonstrable effect at all—not because the method is useless, but through the psychiatrist failing to perceive the mental pathology of his patient. The truth is that in this direction treatment has outstripped diagnosis and is likely to be more accurate than the clinician in doubtful cases.

Owing to the frequent finding of neurosis and depression in the same patient and the intractable nature of the chronic neurotic, attempts have been made to treat the neuroses with electric convulsion therapy (E.C.T.). The literature on the subject is conflicting, and most of the results are by way of an appendix to larger series of figures for the psychoses. Moriarty and Weil (1943) quote 14 authors for 130 cases of all forms of neurosis, of whom 28% were classified recovered, 61% improved, and 11% not improved. They concluded that these results were encouraging, and stated that 10 out of 20 of their own cases remitted with the additional assistance of psychotherapy. They were of the opinion that the better appetite, sleep, and affective gain wrought by E.C.T. paved the way for subsequent psychotherapy. In 1945 the same authors quoted 42 unclassified neurotics treated by E.C.T. and psychotherapy; of these 38% remitted, 55% improved, and 7% were unchanged. Pacella and Barrera (1943) thought that metrazol made neurotic patients worse, especially the obsessional compulsive group, and emphasized the need for psychotherapy in patients given E.C.T. Osgood (1944) draws attention to the difference in opinion about the value of E.C.T. in neuroses, while Bennett (1943) reported on 11 E.C.T.-treated cases, all showing some improvement. Kalinowsky *et al.* (1944) believe that the usefulness of this treatment in psychoneurotic conditions is not yet established. Smith *et al.* (1943) regard the treatment as of doubtful value. Frank (1945) found the post-convulsive automatism of psychoneurotics and psychopaths to be dramatic, to be covered by amnesia, and to be an expression of subconscious memory material. He observed that this "catharsis" did not seem to help. The outstanding impressions from these reports are the poverty of the results compared with those usual in psychotic depression, and the stress laid on the use of psychotherapy in the few favourable reports—a contrast to the perfunctory allusions to psychotherapy in discussing E.C.T. in psychotic depression.

* Patients were accommodated in one ward, sometimes two, of the general hospital block, separate from the military neurosis unit.

From the many varieties of mental disorder encountered at a neurosis centre I have selected 301 cases treated by myself or my colleague Dr. Shorvon with convulsion therapy, composed of neuroses (80), minor psychotic depression (134), and some having elements of both (87).

TABLE I.—*Incidence*

	%	No.	
Minor psychotic depression:			
Simple endogenous	30·8	68	134
Reactive	7·2	16	
Recurrent	8·1	18	
Manic-depressive	5·0	11	
Involutional	9·6	21	
Depression with neurosis:			
Anxiety	9·6	21	70
Hysteria	13·1	29	
Obsessional	9·0	20	
Depression with depersonalization	3·1	7	
Depression with psychopathic personality	4·5	10	
Total depressions		221	
Neuroses:			
Anxiety	35·0	28	80
Hysteria	37·5	30	
Obsessional	27·5	22	
Total (all cases)		301	

The chief features of this sample of patients are: (*a*) They are representative of the largest section of psychiatric practice. For every major psychosis there are many of the above minor types. (*b*) Neurotic symptoms occurred to a greater or lesser degree in half the total number. (*c*) Genuine manic-depressive types were uncommon, but short-term emotional instability was relatively frequent. (*d*) Depression was often associated with psychosomatic, depersonalization, or psychopathic symptoms. Though listed as a leading feature of only 7 patients, depersonalization was a complication to some degree in at least 21 others. (*e*) The response to E.C.T. tends to be more variable than in the severer psychotic states seen in mental hospitals owing to the association of other reaction types with depression. The main clinical groups react to convulsions in an individual way that is often of assistance in diagnosis—more so than earlier reports led one to expect.

Primary Neurotic States

1. Obsessional Neurosis.—Since the use of convulsion therapy the treatment and prognosis of this group depend more than ever on deciding whether the depressive aspect of such patients represents the primary factor in a psychotic depression or a secondary one in a severe obsessional neurosis. A full psychiatric examination will settle the matter in many instances, but psychiatrists will be familiar with the intermediate type in which the relative proportion of obsessional neurosis and depression cannot be definitely assessed. The mere intensity of such obsessional or depressive symptomatology as the patient displays is no reliable guide, for patients tend to insist on the primary nature of the obsession (Lewis, 1934). Their misleading insistence has led to unjustifiable claims for the successful treatment of obsessional neurosis by E.C.T. The following example from a case in this series originally diagnosed as obsessional neurosis illustrates the difficulty. The patient presented strong obsessional symptoms of 16 years' duration. Her father and one brother had obsessional personalities. Her condition was such that four experienced psychiatrists considered her suitable for leucotomy and unlikely to respond to E.C.T. None the less, she improved so much on a course of convulsions that after receiving six she was discharged and shortly returned to work. It may be objected that a more carefully taken history would have elicited a point in the illness where depression set in, but it could not be found even where a predisposition to do so existed. She partly relapsed after a year. Table II shows the results of treatment in two groups of neurotic and psychotic patients, both having strong obsessional compulsive thoughts.

The disparity in results is obvious. Only 3 obsessional neurotics showed much improvement, compared with 17 out of 20 cases of obsessional depression recovered or much improved. Besides depression, four of the obsessional neurosis cases were complicated by anxiety and two by schizophrenic features. The follow-up finding that 5 out of 13 cases of obsessional neurosis could be considered recovered after twelve months is in agreement with those who believe that this form of neurosis has a less gloomy prognosis than is often thought to be the case. The effect of convulsion therapy on obsessional

TABLE II

	Obsessional Neurosis						Depression with Obsession					
	R	MI	I	NC	CR	Total	R	MI	I	NC	R	Total
At discharge	0	3	10	9	0	22	11	6	2	1	0	20
After 6 months	4	2	6	1	0	13	6	3	1	0	2	12
After 12 months	5	3	3	1	1	13	4	4	0	0	0	8

R = Recovered. MI = Much improved. I = Improved. NC = No change. CR = Complete relapse.

neurosis was usually negligible. After 6 to 8 convulsions amnesia may lead to a temporary "sham" recovery. Sometimes a symptomatic improvement occurred for 12 to 24 hours after a fit. This temporary breaking up of the obsessional pattern occasionally paved the way for progress in psychotherapy—the combined treatment resulting in a better adaptation. Apart from early complaint of memory defect, the obsessional neurotic was singularly free from the mental complications seen in other types, to be discussed shortly.

TABLE III

	Anxiety Neurosis						Depression with Anxiety					
	R	MI	I	NC	CR	Total	R	MI	I	NC	CR	Total
At discharge	1	5	11	11	0	28	10	6	4	1	0	21
After 6 months	2	8	4	5	2	21	7	3	4	3	2	19
After 12 months	2	3	5	3	5	18	10	3	2	1	1	17

2. Anxiety Neurosis.—Of the 28 cases of anxiety neurosis listed in Table III 19 were associated with varying degrees of depression, 7 with obsessional symptoms, 6 with hysteria, and 3 with depersonalization. The distinguishing features of their reaction to E.C.T. are: (*a*) more apprehension before treatment than any other group, treatment often becoming a focal point in their phobias; (*b*) exaggeration of somatic symptoms appears for a few hours or days. Aches and pains of a vague psychogenic quality occur in various parts of the body, and there is much unattached fear. These developments indicate that treatment should be stopped if the patient has not already refused to continue. There is every likelihood of doing more harm than good in attempting to treat anxiety states with E.C.T., and the contrasted results of Table III are obvious enough.

TABLE IV

	Hysterical Neuroses						Depression with Hysteria					
	R	MI	I	NC	CR	Total	R	MI	I	NC	CR	Total
At discharge	2	3	15	10	0	30	8	13	5	3	0	29
After 6 months	3	2	6	8	2	21	3	6	10	2	2	23
After 12 months	3	2	6	9	0	20	5	8	4	2	5	24

3. Hysterias.—In the 30 patients of this group conversion symptoms were sometimes present, but were not of a fully developed or fixed type. The majority showed some superficial depression, and the prognosis in general was poor. There were two forms of reaction to E.C.T.—a dramatic but transient improvement, and, more often, a flare-up of psychological and physical symptoms. Any new physical discomfort provoked by the treatment tends to be incorporated into the hysterical pattern. For example, slight nausea will tie them to a bowl for an hour or more in expectation of vomiting if allowed to do so, though in all other patients the liability to vomiting is rare in E.C.T. Similarly, old-standing hysterical pains such as backache become greatly exaggerated. It is true to say that such improvement as occurred in these hysterical neurotics was due to other treatment or could be ascribed to wrong diagnosis.

So far as primarily neurotic illness is concerned one can only conclude that convulsion treatment is best avoided. Neurotic patients complain of memory defect much earlier

and more insistently than do psychotics. In anxious or hysterical conditions the patient may be made temporarily worse. The effects of E.C.T. are not comparable with those of psychotherapy in neurosis, where Curran (1937) has reported definite improvement in from 60 to 70% of patients. Where a complexity of psychotic and neurotic traits defies ordinary means of diagnosis it may sometimes be justifiable to employ a few well-spaced convulsions to give further information for the purpose of taking a more definite line in treatment.

Depression with Neurotic Complications

In this section the same personality deviations are considered—i.e., depression, hysteria, anxiety, and obsession states—but their relative importance in the aetiology is reversed. In these patients the principal reaction type is mild or moderately severe psychotic depression, while neurotic symptoms are of secondary aetiological importance. The latter were definitely present in one-third of the 221 cases. To a degree which depends on their development in the previous personality, these neurotic symptoms modify prognosis and treatment in their own characteristic way. When they are the outcome of comparatively minor neurotic traits in an otherwise well-adjusted personality they disappear as the depression is benefited by treatment. Alternatively, the more closely neurotic qualities in the previous mental make-up approach the status of chronic symptoms the less satisfactory will be the final effect of E.C.T. on an intercurrent psychotic depression.

Accurate information about the previous personality of a patient suffering from depression and neurotic symptoms will enable one to forecast the extent of recovery after treatment. If the previous personality has been well adjusted, having no more than mild neurotic trends, then the depression and neurotic symptoms, however florid, are likely to respond to treatment. But if the personality has been definitely handicapped for a long time by neurotic features, then, though the depression may remit, the neurotic symptoms will subside only to persist at their former level in the personality. Although an infinite variation prevails in the ratio of psychotic to neurotic activity, we must endeavour to decide which is the dominant pathological deviation. Failure in this respect may leave the illness not merely unchanged but worse after E.C.T., as already noted.

Obsessional symptoms are the only neurotic complication having any favourable effect on the outcome of a psychotic type of depression. The immediate results are as satisfactory as in uncomplicated depression; patients were not prone to the mental complications seen in other neuroses, and the relapse rate was the lowest for any of the larger clinical groups. These last two factors are no doubt a corollary to the rigidity usually imposed on the personality by obsessional qualities, and recall the influence of the obsessional mechanism in preserving the personality of the schizophrenic patient (Stengel, 1945). Subjects with depression complicated by neurosis complain of memory defect earlier and more often than purely psychotic types. Obsessional depressive patients notice this forgetfulness more than any other group treated by E.C.T.

Where recent anxiety symptoms complicate depression they do not materially affect the result. Such patients are more apprehensive of E.C.T. and may need premedication. Sodium amytal 3 to 6 gr. (0.2 to 0.4 g.) half an hour before treatment, or 3 ml. of 10% sodium amytal intravenously immediately beforehand, will not prevent the fit, though a small voltage increase is sometimes required. This modification is also useful for temporary post-convulsion restlessness or excitement.

The presence of hysterical symptoms in a case of depression means a more unstable constitution. In 29 patients of this type 9 had partly or completely relapsed in six months, and 12 in a year. Immediate results compared unfavourably with other depressive states with or without neurosis, so that this was the only group in which recovered cases were exceeded by any less satisfactory category. Even so, the contrast with the primary hysterias in results is very striking. This contrast is most obvious in Tables II and III, and one is tempted to infer that where a case considered to be primarily neurotic has shown considerable gain with E.C.T. the diagnosis is probably wrong.

The depressions with secondary neurotic symptoms, having a combined "recovered–much improved" rate of 76.5%, compared well with 77% for all other depressions shown in Table V.

TABLE V.—*Depressions (Endogenous, Reactive, Involutional, Recurrent, Manic-depressive, and Psychopathic)*

	R	MI	I	NC	CR	Total
On discharge ..	59 (54%)	25 (23%)	20 (18%)	5 (5%)	0 (0%)	109
After 6 months ..	41 (45%)	20 (22%)	20 (22%)	1 (1%)	9 (10%)	91
After 12 months ..	44 (60%)	12 (16%)	9 (12%)	4 (6%)	4 (6%)	73

The *results* in these mild or moderately severe psychotic cases differ little from other published reports. Their condition, on discharge, of 77% recovered and much improved, 18% improved, and 5% unchanged, is in keeping with the 47 statistical reports collected by Ziskind *et al.* (1945), in which 2,777 cases were divided into 69% recovered and much improved, 18% improved, and 13% unchanged. One patient committed suicide three months after discharge.

Relapses

Since relapse is sometimes considered to be frequent, its incidence was fully examined, and is shown in Table VI.

TABLE VI.—*Relapses (6 months to 4 years)*

	No. of Patients	Partial Relapse	Complete Relapse	Total Relapsed
Depression:				
Endogenous	68	7 (10·3%)	8 (11·7%)	15 (22%)
Reactive	16	0 (0%)	4 (25%)	4 (25%)
Recurrent	18	9 (50%)	3 (16·6%)	12 (66%)
Involutional	21	2 (9·5%)	4 (19%)	6 (28·5%)
Manic-depressive	11	1 (9%)	1 (9%)	2 (18%)
c̄ Psychopathic personality ..	10	0 (0%)	0 (0%)	0 (0%)
c̄ Anxiety	21	4 (19%)	3 (14·3%)	7 (33·3%)
c̄ Hysteria	29	7 (24·1%)	5 (17·2%)	12 (41·3%)
c̄ Obsession	20	2 (10%)	1 (5%)	3 (15%)
c̄ Depersonalization ..	7	1 (14·3%)	2 (28·5%)	3 (42·8%)
Total	221	33 (14·9%)	31 (14%)	64 (28·9%)

Of all relapses, half occurred within the first 6 months, approximately a quarter more within a year, and the remaining quarter within four years. If out-patient observation is maintained for six weeks after discharge many incipient relapses can be curtailed by further treatment. The 25% relapse rate for reactive depression is misleading if one does not allow for the fact that the personal problems of all the patients represented in the percentage could not be appreciably alleviated, and demanded an exceptionally high degree of adjustment. The unfavourable effect of neurotic features on the incidence of relapse has been noted elsewhere, obsessional depressions excepted. The high relapse rate of the recurrent group offers no hope of convulsion treatment limiting their constitutional liability to subsequent attacks. The ease with which these recurrent cases become depressed is usually paralleled by their rapid response to a few fits. Remembering that all these patients were subject to frequent bombing and other wartime stresses, the general relapse rate is probably not excessive. In the largest single group of endogenous depression only one out of every eleven relapsed completely.

Indifferent Results

To assist in case selection 52 depressed patients discharged "improved" or with "no change" were examined for factors which might have contributed to these unsatisfactory results.

(1) *Treatment was insufficient* in 14 cases on account of physical handicaps, refusal to complete the course, or the presence of strong delusional symptoms in the depression. In the latter cases, as Fitzgerald (1943) has pointed out, longer courses of fits are necessary than in simple depressions. Of the 5 cases of depression which made no improvement at all (see Table V) 4 had insufficient treatment owing to premature discharge. Of the 20 patients listed as "improved" 5 failed to complete their treatment, while no such failures were seen in the "recovered" and "much improved" categories.

(2) In 20 depressed patients *severe chronic neurotic symptoms* with hypochondriasis and depersonalization prevented full recovery. Such symptoms persisted even though depression was improved.

(3) *Psychopathic personalities* adversely affected progress in at least 5 cases.

(4) In 4 cases an early depression proved to be a temporary mask for *schizophrenia*.

(5) In 7 cases *persisting reactive stresses* remained undisclosed until several fits had been given. Such patients would improve for 12 to 24 hours, then relapse. This type of response should always suggest further search for reactive factors, such as homosexuality, marital infidelity, etc.

(6) *Over-treatment*.—In one of my cases two fits were enough to translate depression into mania. In a general hospital psychiatric ward such a complication is an impossible problem which may result in transfer to an observation ward, unless the attack is mild enough to be well controlled by a course of continuous sleep. The first sign of such a change is failure to sleep, so that in cyclothymic patients it is well worth while maintaining a sleep chart each night to give the first warning of the manic swing.

In the whole series other factors prejudicial to full recovery were:

(7) *Subshock*.—In 66 depressed cases which had one or more subshocks in their course the recovery rate on discharge was 21% less than that for the whole series. Although it is generally considered advisable to use the minimum current which will induce a fit, it is probably better to give 10 to 15 volts in excess of the minimum rather than strive for a margin so narrow that there is substantial liability to subshock.

(8) *Age*.—In 220 depressed cases there was no significant variation for age until after 60, when the expectation of recovery or considerable improvement with E.C.T. is half the corresponding rate for early or middle life.

TABLE VII.—*Results According to Age Groups*

Age (years):	Under 20	21–30	31–40	41–50	51–60	61–70
A. Recovered and much improved	10	47	42	35	21	4
B. Improved and no change	3	19	15	12	9	3
Ratio of A to B ..	3·3	2·5	2·8	2·9	2·3	1·3

Depersonalization

This fascinating symptom, of which so little is really known, was prominent in 20 cases, and occurred in a lesser degree in many others. So long as it occurs in an essentially depressive setting, it will clear as the depression responds to E.C.T., and in this respect depersonalization behaves like any of the classical forms of neurosis. Where severe it has an unfortunate habit of clouding the depression. The patients tend to make it their chief complaint, and the real diagnosis is obscured. The combined "recovered" and "much improved" percentage for depressed depersonalization cases is not significantly less than the corresponding figures for endogenous depression.

There remain a few points on which, as a result of further experience, it is possible to write more conclusively.

The Correct Number of Fits

There can be no absolute rule about this, since the number has to be adapted according to the type of illness and its severity in each patient. Because individual requirements may vary from 2 to 15 fits at the rate of one, two, or three a week, it is inappropriate to think in terms of set courses after the practice of injections of arsenobenzol for syphilis. As a rule, schizophrenic cases require from 10 to 15 fits at the rate of three per week, dropping to two after the first two weeks. For most depressions a frequency of two fits a week is sufficient. When delusional symptoms are prominent (cf. Fitzgerald, 1943) a total of 8 to 12 fits is usually needed, while in depressions not so complicated the number may range from 2 to 8. The latter figure is suitable for some chronic obsessional states. In many cases it is better to give fits more frequently at first and space them out later, according to progress. The above numbers are based on the practice of giving one or two further fits after remission of symptoms has occurred, in order to minimize possibilities of relapse. In general, the more often fits are given per week the greater the incidence of confusional states, of forgetfulness, and of delta activity in the E.E.G. pattern. The number cannot be properly regulated and the above complications minimized without personal interviews after every one or two fits, because individual needs cannot be foreseen more than one or two treatments ahead. The patient should be interviewed on a day when no treatment is given, otherwise apprehension before and mild confusion after the fit render co-operation doubtful.

Fractures; Pregnancy; Late Fits

The symptomless character of most of the compression spinal fractures occurring after E.C.T., the absence of subsequent disability after over 10 years, and the finding of similar fractures in 10% of epileptics (Cook and Sands, 1941) have allayed much of the anxiety felt in the matter. Since it was obviously desirable to minimize the chances of these fractures, the effect of extension over a rolled blanket placed under the mid-thoracic spine while counter-pressure is exerted on shoulders and hips, as recommended by Furst (1940), was tried on 100 female patients. Fracture boards were placed under the mattress. The incidence of fractures was reduced to 4%, compared with the 14.7% noted in 1941 (Cook and Sands), when no restraint was used in a group of 143 cases, half male and half female. With the spine fully extended, only minor degrees of compression were found in the few patients so damaged. All patients were radiographed before and after treatment. In some reports pain in the back has been the criterion for the use of *x* rays and the basis for subsequent figures of fracture incidence. This is misleading, since the pain is sometimes of purely muscular origin and many spinal fractures of the simple compression variety due to fits are not accompanied by pain. Local tenderness over the site of fracture, with or without pain referred round the lower chest towards the epigastrium, aggravated by deep breathing and coughing, is the most trustworthy clinical sign. In the present series of 301 patients an impacted fracture of the humeral neck was the only other form of bony complication.

One patient was discovered to be three months pregnant during a course of 5 convulsive shocks. Another was not known to be pregnant until her course of 8 convulsions had been concluded. Both pregnancies subsequently terminated in full-time healthy children.

No late fits suggestive of induction of an epileptic habit are known to have occurred in this group, in spite of a fairly comprehensive follow-up, nor was there any evidence of a lowered threshold for the induction of fits in the later stages of a course. The E.E.G. abnormalities in a group of 58 patients examined by Dr. Denis Hill did not include the characteristic wave and spike of petit mal.

Commentary

One of the most interesting points about convulsion therapy is the consistency of its effects amongst the commoner mental illnesses, with the resulting illumination of diagnosis in doubtful cases. First, as between neurotic and psychotic states; although symptoms of both may often be found together in early cases, if convulsion therapy is given it differentiates between them and emphasizes the gulf between their appropriate treatment. While the psychotic depression cases, with their withdrawal from reality and diminished awareness of the environment, thrive on the massive psychological and physical stimulus of the fit, the neurotics, with a pathological awareness of self and unstable and exaggerated emotional responses to environmental change, are aggravated by such trauma. The results here and in other papers support this view. In the psychotic group itself (organic cases excluded) the efficiency of the treatment shows considerable variation, depending largely on whether affective or thought disorders predominate. Though results in the former are generally good, the latter do not show the same immediate specific response. Those conditions regarded as primarily disorders of thought—namely, the schizophrenias, paraphrenias, and paranoias—have their own mode of reaction. There is usually no detectable response until 4 to 6 fits have been given; then some symptomatic improvement occurs coincident with forgetfulness of recent events, with mild confusion, and with dysrhythmia in the E.E.G. If the treatment is continued further, as advocated by some authorities, then after 10 to 15 fits appears the plateau type of over-politeness and emotional shallowness described by Frank (1945). In fact, a temporary sham

improvement is maintained so long as some degree of disintegration of pattern of thought can be effected by the fits. Individual cases have often done well, particularly where a lively affective reaction accompanies schizophrenic thinking. Even so, as Sargant and Slater (1944) have pointed out, relief of the mood disorder may occur, leaving a pathological thought content uninfluenced. It is hardly surprising, therefore, that figures for large series of such patients are not to be compared with results in depressions, and in the long run are not better than those in controls. By contrast, in psychotic depression the patient may have recovered, or be well on the way to doing so, before discoverable abnormality of memory or E.E.G. can be found. Old people often respond well to E.C.T., although about the age of 60 or later it is not uncommonly found that, after dispersal of depression, senile changes remain in the form of narrowness and poverty of ideation, tendency to perseveration, and the use of a very limited range of words. In mania the effect is less dramatic, yet E.C.T. appears to exert a form of sedation on the manic symptoms, often most useful at the height of the illness. Neuroses, depressions with neurotic features, and reactive depressions have all been described as possessing characteristic reactions to convulsion therapy. It is certain that the careful observation of these reactions under in-patient conditions can give much useful information about the underlying psychopathology, duration of treatment, and prognosis—the very part of the treatment requiring a specialist's attention.

TABLE VIII.—*Case Selection for E.C.T.*

Favourable	Doubtful	Contraindicated
Psychotic depression with retardation, agitation, delusions, and neurotic or psychopathic complications	Schizophrenia	Anxiety neurosis
Depressed phase of manic-depressive psychoses	Paraphrenia	Hysteria
Recurrent depression	Paranoia	Neurasthenia
Involutional depression	Obsessional neurosis	Organic psychoses with syphilis or with arteriosclerosis
Reactive depression where reactive stress has faded	Idiopathic epilepsy	Pre-senile dementia
	Post-encephalitic Parkinsonism with depression	Post-traumatic syndromes
		Huntington's chorea

Regarding the whole problem of mode of action, it is difficult to escape the conclusion that a varying degree of personality disintegration and regression is required, sufficient to disorganize the recently acquired habits of feeling and thinking. The personality then employs long-established reflexes and patterns of behaviour to readjust at a slightly lower level, but not necessarily to stay there. Concerning the far more drastic procedure of leucotomy, Golla (1943) recalled the work of Sherrington and Graham Brown demonstrating the remarkable recuperative powers of even the severely damaged nervous system. Similarly, in the few weeks immediately following convulsion therapy this inherent recovery process is paralleled by a gradual disappearance of forgetfulness and of such dysrhythmia as was engendered in the E.E.G. Such a process could hardly be expected to flourish in the presence of a pre-existing organic cerebral pathology; and in fact, if a case of depression secondary to arteriosclerosis, syphilis, or pre-senile dementia is inadvertently given E.C.T. the usual recuperation is impeded or absent. In such cases not only may a permanent state of regression be inflicted but the organic deterioration may be accelerated. Incontinence of urine sometimes gives an early warning of this error.

The propriety of using psychotherapy with E.C.T. in depression has often been discussed (Moriarty and Weil, 1943; Osgood, 1944). It depends on the type of depression and how far it has progressed. Moderate psychotic depressions, such as can be treated under general hospital conditions or as voluntary cases, are frequently blended with neurotic complications. If treated by E.C.T. the psychotic depression clears and the relief may enable the neurotic element to make a spontaneous adjustment. If it does not, then psychotherapy is indicated, being often assisted by the previous dispersal of the depressive element of the illness. Selinski (1943) and Kalinowsky *et al.* (1944) have commented on the better accessibility to psychotherapy given to some patients by E.C.T. In this respect, severe certified depressions are no problem, since, obviously, strict psychotherapeutic techniques cannot be applied to an inaccessible patient, while in depression secondary to a primary neurotic disorder E.C.T. is certainly to be avoided in favour of psychotherapy. These methods are complementary, and inadequate treatment is inevitable if all therapeutic effort is canalized in one or other direction for every case.

A final point should be made about the relation of E.C.T. and other physical treatment to terminology. There is a tendency to associate the term "psychotic" too exclusively with mental hospital types. It is sometimes overlooked that there are at least as many cases of psychotic-type depression outside such hospitals whose treatment is equally urgent—and more so, since they are usually without proper observation and exposed to suicidal risks. In some a well-integrated personality can survive the stress of a mild psychotic depression, while in others the relatively sound integration may conceal severe symptoms even from those in closest contact, so that the final tragedy surprises all concerned. These patients respond well to E.C.T., and give results comparable to any in general medicine; none the less, these findings should deter the inexperienced but enthusiastic therapist from "pressing the button" without a satisfactory preliminary investigation of those appearing to be depressed, otherwise definite harm may be done to the patient. Repeated careful psychiatric examination before, during, and after treatment is the most important aspect of convulsion therapy—more so than the careful management of the actual fits.

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TECHNIQUE FOR THE USE OF *d*-TUBOCURARINE CHLORIDE WITH BALANCED ANAESTHESIA

BY

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The novelty of curare has passed, and the site of action, physiology, and pharmacology of the drug have been the subjects of many recent publications (see Gray and Halton, 1946). It is thought that a description of the methods employed in the administration of *d*-tubocurarine chloride (B. W. & Co.) in some 1,500 cases might be opportune. For the sake of brevity in the ensuing discussion *d*-tubocurarine chloride (B. W. & Co.) will be referred to as curarine.

Apparatus

Solutions of curarine and the quick-acting intravenous barbiturates are non-miscible. It is necessary here to correct a misunderstanding that may have arisen through a previous statement that curarine dissolves in excess pentothal solution. This is perfectly correct when applied to the pure crystalline powder. However, the solution now supplied by the makers

contains a harmless stabilizing agent which renders irreversible the precipitate formed with the barbiturates. To overcome this precipitation and to ensure that the intravenous needle will remain clear, in position, and under control during the operation three pieces of apparatus are suggested for use in the techniques described below:

1. A simple on-and-off tap (Fig. 1) with Record mountings. (Obtainable from M. & I. E. & Co., Ltd., London.)

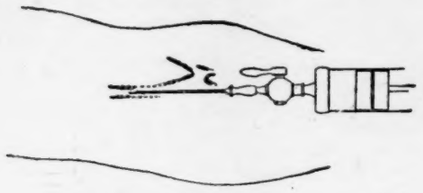

FIG. 1

2. A three-way tap mounted on a plate which can be strapped to the arm (Fig. 2). The tap itself may be detached from the plate for purposes of sterilization. One inlet is connected to an intravenous drip of saline, plasma, or blood. A Record syringe containing the solution to be injected is connected to the other inlet.

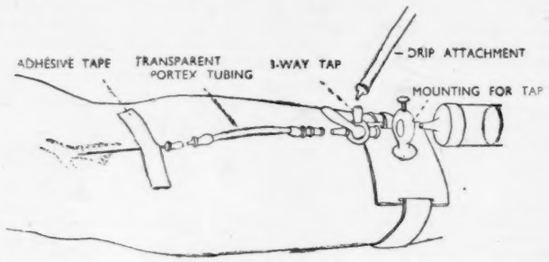

FIG. 2

The outlet is attached to two inches of fine-bore, transparent Portex tubing, which in turn leads to the needle (obtainable from Alexander Fowler & Co., Ltd., Liverpool).

3. The remote-control tap is described elsewhere by Gray and Osborne (1946)—a rather more elaborate method but having the advantage of ensuring perfect control with the arm in any position.

Premedication

Very light premedication is advocated. In these days of intravenous induction of anaesthesia there is no necessity for heavy sedation, and the respiratory depression it produces is harmful. For adults morphine gr. 1/6 (11 mg.) with atropine gr. 1/150–1/100 (0.4–0.65 mg.) has been the routine, but this is modified where age or the condition of the patient so demands. It has been found useful to substitute dilaudid gr. 1/32 (2 mg.) or pethidine 50–100 mg. when there is a history of excessive vomiting after previous anaesthesia. The time of administration of the pre-operative drugs is all-important: they should be given 1–1½ hours before the operation starts.

Technique of Administration for Short Procedures

This anaesthesia is suitable for all endoscopic investigations, but particularly for bronchoscopy and oesophagoscopy by virtue of the complete relaxation of the vocal cords and the pharyngeal sphincter. It is also of value in the re-suture of burst abdominal wounds. A single injection of 15 mg. of curarine is followed by a suitable dose of barbiturate, both given intravenously. In all cases under review 0.5 g. of pentothal or 0.75 g. of "kemithal" (Macintosh and Scott, 1946; Gordon and Gibbons, 1946; Halton, 1946) have been used initially.

The simple tap described above (Fig. 1) is connected to a needle size 15. A tourniquet is applied round the selected arm and venepuncture performed with the tap in the "off" position. Entry into the vein is confirmed by a reflux of blood when the tap is turned on. The tourniquet is released and three successive injections made: 1.5 ml. of curarine solution, followed by 2–3 ml. of sterile normal saline to wash through the tap and the needle, and finally the barbiturate solution, which should be given as quickly as the bore of the needle and the syringe permit, the whole manœuvre to be carried out cleanly and speedily.

Satisfactory anaesthesia, indicated by complete relaxation of the jaw, speedily ensues. The pulse rate and respiration must be under constant observation. The respiration ceases for from 30 seconds to one minute and a half, but is usually resumed before any degree of cyanosis or harmful anoxia can occur. Oxygen must always be administered. This is most easily done through the side-tube on a bronchoscope, through a catheter introduced into the trachea in the case of oesophagoscopies, and in other cases through a pharyngeal airway. At any time cyanosis must be countered by the immediate institution of "aided respiration," described later.

The above dosage is applicable to adults of average age and in fair condition. In elderly patients there must be some proportional reduction in dosage, and in children the correct dosage of curarine solution is 0.2 ml. (2 mg.) per stone (6.4 kg.) body weight. After doses of this order patients usually recover their protective reflexes and have full respiratory function in seven to ten minutes; but should this not occur they are retained in the theatre until there is no fear of respiratory obstruction or depression.

Technique of Administration for Longer Procedures

This is essentially a balanced anaesthesia. After induction the patient is maintained in a light plane by means of an intravenous barbiturate. The curarine produces relaxation and at the same time so reduces the amount of the barbiturate which has to be used that there is no delay in recovery. The exhibition of any of the inhalational agents is possible without causing laryngeal spasm. Their addition is useful when excessive manipulation or other factors arising during the operation demand a momentary deepening of the anaesthetic plane. Only minimal amounts of these agents are ever required. With very little experience the quantity of the barbiturate, the curarine, and the inhalational anaesthetic can be so estimated that no excessive amounts of any single one of them will produce a delay in post-operative recovery.

Control of respiratory exchange is essential in order to ensure that oxygenation is adequate and carbon dioxide eliminated. This is best attained by use of a closed circuit. The circuit must be completely free from leaks, and the application of the mask to the face made really air-tight by packing gauze inside the cheeks and the use of the Moreland Smith (1944) chin prop. When curarine is used in effective doses the tidal air is reduced. The inspiratory phase of the respiration must be amplified by rhythmic manual pressure on the re-breathing bag. This is "aided" rather than "controlled" respiration.

Adequate ventilation of the lungs is always possible through a pharyngeal airway of good design. Although endotracheal intubation under vision is simple when curarine is used it is considered necessary only where the site and nature of the operation preclude the use of a mask, in thoracic operations when bronchial occlusion or suction drainage is required, or in cases of intestinal obstruction when there is a danger of regurgitation of abdominal contents. It is useful occasionally in operations on the gall-bladder in the very obese.

Dosage

The use of either the three-way tap or the remote-control device of Gray and Osborne greatly facilitates the repeated intravenous injections required in these longer procedures.

Fifteen mg. of curarine are injected. When the patient is unable to keep his eyes open this is followed by either 0.5 g. of pentothal or 0.75 g. of "kemithal." After the lapse of two minutes intubation under direct vision can be performed if necessary, or an airway can be inserted and the anaesthetic mask placed in position without cough or spasm. Before the skin incision is made 0.2–0.4 g. of pentothal or 0.4–0.8 g. of "kemithal" is injected, and in the case of abdominal operations this is fortified by 0.5–1.0 ml. (5–10 mg.) of curarine. When the case is one for thoracotomy the curarine is injected just before the opening of the pleural cavity. As a general

rule slightly larger amounts will be required to control the diaphragm than will be found necessary in abdominal work. In thoracoplasties curarine is used at induction, and again to control the diaphragm and excessive respiratory movements if an apical mobilization is performed. During the operation slight movements or attempts at phonation, preceded by a rise in pulse rate, indicate the necessity for small increments of the barbiturate: these are in the nature of 0.1–0.2 g. of pentothal, or 0.2–0.4 g. of "kemithal."

A resistance to the inflation of the chest encountered by the hand on the re-breathing bag is the first indication that more curarine is required. This is added in doses of 2–4 mg. It is recommended that no curarine be given during the last twenty minutes of the operation, and the total dosage should not exceed 30–35 mg. The maximum amount of barbiturate that is used in long cases should not exceed 1.5 g. of pentothal or 2.5 g. of "kemithal." During the operation any approach to these maximal doses is anticipated, and a small amount of an inhalation agent, usually cyclopropane, is introduced into the circuit.

Experience has shown that this balanced technique results in far less post-operative morbidity than if the anaesthesia were either solely inhalational or solely intravenous.

Discussion

There is a rationale for the use of curarine. The drug should not be considered merely as an "aid" to anaesthesia, the last resort in a difficult administration; it is more—it is an integral part of the anaesthetic procedure. This is by virtue of four important properties: (*a*) it is quickly eliminated, leaving no toxic after-effects; (*b*) it produces relaxation as and when desired; (*c*) it abolishes laryngeal and bronchial spasm, making intubation of the trachea necessary only in selected types of cases; (*d*) because of the undoubted synergistic action with the anaesthetic agents the dose necessary to keep a patient asleep can be considerably reduced.

If these four properties are borne in mind, and if a correctly balanced anaesthesia is maintained, patients after long abdominal and thoracic operations are awake, in good vasomotor equilibrium, free from nausea, and able to exert their respiratory functions to the full. There is in consequence a smooth post-operative convalescence.

The drug may be given subcutaneously or intravenously. The first method need only be mentioned to be dismissed; it has no place in anaesthesia. When it is given intramuscularly the action is delayed for approximately fifteen minutes—often it is longer—and a maximum effect may not be seen for thirty minutes. It is obviously difficult to judge the injection so that relaxation will be present when and only when it is required. Furthermore, the duration of the action of the drug by this route is uncertain, especially when some degree of shock has reduced the absorptive functions of the circulation. In such cases there is a very great likelihood that the anaesthetist may be faced at the end of the operation with a patient whose respirations are laboured, who is unable to cough, and who is in urgent need of artificial respiration with oxygen. This is a very undesirable state of affairs, the proof of which lies in the proportion of post-operative chest complications seen when this technique is employed (Prescott, Organe, and Rowbotham, 1946). The same report advocated the use of an intravenous injection of curarine for induction with subsequent maintenance by the intramuscular route. This was tried early in the present series under discussion and abandoned for the reasons already given.

In conclusion, there are rare occasions when physostigmine, the physiological antidote to curarine, may be useful. It must be given in large doses and with atropine to prevent the undesirable parasympathomimetic effects. Prostigmin 3–5 mg. with atropine gr. 1/50 (1.3 mg.) has proved an effective combination.

There appear to be no real contraindications to the use of curarine provided that the administrator has a sound knowledge of the technique of its use and is familiar with the care of a patient in whom the usual signs of anaesthetic depth are absent, and where the natural process of respiratory exchange is impaired or completely abolished.

Summary

The technique of administration of *d*-tubocurarine chloride in some 1,500 cases is reviewed and the requisite apparatus described.

The rationale of its use is discussed and the various forms of parenteral administration assessed.

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SOME USES OF THROMBIN IN THE SURGERY OF THE EAR, NOSE, AND THROAT

BY

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In the surgery of the ear, nose, and throat many problems exercise the ingenuity and tax the patience of the surgeon. This paper is concerned with only two of these problems. The first is the control of bleeding, the second the healing of raw bony surfaces which have been deprived of their diseased covering by the removal of infected bone and granulations in the course of a radical mastoidectomy or similar operation.

Great reliance is commonly placed on the use of packing. Gauze is packed into one cavity to arrest bleeding; it is forced into another to control the overgrowth of granulations. Not only does the use of such a method frequently fail of its purpose, but also it favours continued infection and delay in healing. No evidence is needed of the discomfort such a gauze pack causes, or of the pain which its withdrawal inflicts.

The employment of thrombin enables the surgeon to dispense with packing in some situations where before it was essential. It is the purpose of this paper to indicate in what ways it can be so used.

Mellanby first prepared thrombin in 1933. The addition of thrombin to blood or plasma causes the formation of a clot. The ampoule in which it is supplied contains 5,000 Iowa units.* One such unit is the amount of thrombin which will clot 1 ml. of standard fibrinogen solution in 15 seconds. With the ampoule containing the thrombin powder is another holding 5 ml. of sterile water, in which the thrombin powder is readily soluble. The rate of action of the thrombin can be varied by using more or less of the solvent. By using less solvent the surgeon obtains a fluid which clots plasma quicker than will a more dilute solution. It should never be injected into the tissues.

Control of Haemorrhage

The Throat.—Brisk arterial or venous bleeding does not respond to the action of thrombin (Ingraham and Bailey, 1944). Personal experience of its employment in tonsillectomy confirms this. An attempt was made to provide a firm clot in the tonsillar fossa by spraying the raw surfaces with thrombin solution after the larger vessels had been picked up and tied. This technique was followed in 165 tonsillectomies, but it did not, as had been hoped, prevent the occasional case of reactionary haemorrhage. Its use was therefore discontinued.

The Ear.—Thrombin has proved of great value in the control of oozing from small vessels. It is this bleeding which is such an embarrassment to the surgeon in the narrow field of the mastoidectomy wound. Constant oozing hides important bony landmarks, such as the torus of the external semicircular canal, and causes loss of time in the performance of the operation. After ligature of such vessels as can be picked up with a haemostat a few drops of the thrombin solution are run over the wound cavity. In a few moments a clot forms; this should be left undisturbed for 30 seconds or so. The outer layers of the clot can then be aspirated, leaving a fine film of clot over the whole surface.

* Thrombin, Topical, P.D., has been used in this series.

The Nose.—(*a*) Simple epistaxis is not easily controlled by the application of thrombin. A large unwieldy clot forms, and when this is detached fresh bleeding occurs. (*b*) After a submucous resection of the septum the two sheets of the nasal mucous membrane must be brought together to adhere, and so to obliterate the cavity left after removal of the distorted bone and cartilage. Usually both nasal fossae must be packed to keep these two sheets pressed together. By following the technique described below the need for packing can be avoided.

The operation is conducted under local analgesia, and consequently through a bloodless field. At the end of the operation the blades of a long Thudichum speculum are inserted between the two flaps of septal mucosa, and a few minims of thrombin solution are sprayed over the inner surfaces of the flaps. The speculum is withdrawn, and the blades, guarded with a few turns of moist gauze, are inserted on each side of the septum, thus pressing the mucous membranes together, when they will firmly adhere. The pressure need not be forcible, nor need it last more than a few seconds. If during the course of the operation the flaps have been accidentally torn, the edges of the tear can be spread in the position they should occupy. After moistening with thrombin, a short period of pressure will fix them in the desired position. No packing is left in the nose.

The contention that packing is necessary to keep the membranous septum straight is invalid. If the removal of bone has been adequately performed, the membranous septum will automatically assume a vertical position in the middle line. If the removal has been insufficient, no packing will correct the resulting deformity. Too much stress cannot be laid on the ill effects of nasal plugging. Even the most gentle packing inflicts abrasions upon this most vulnerable of membranes. By this technique damage to the ciliated epithelium is reduced to a minimum.

After the operation very little bleeding occurs; there is usually a blood-stained discharge for twelve hours. In only two of the 35 noses in which this method has been tried has bleeding been sufficient to call for post-operative packing in the ward. Reactionary swelling is very much less than when a pack has been employed, and the airway is consequently clear more quickly (Stevenson, 1944). Haematoma of the septum has not been seen.

Fixation of Skin Grafts by Means of Fibrin Clot

In performing a radical or modified radical mastoidectomy the surgeon aims at obtaining a smooth-walled bony cavity, lined throughout with skin, and possessing no recesses where infection may lurk and whence a troublesome discharge may subsequently issue. The achievement of this aim depends very largely upon the care with which all infected tissue is removed and upon the general shaping of the bony cavity. Only too often the surgeon's most meticulous care is wasted, as the cavity fills with hypertrophied granulations. These spring up and fuse with one another, so that there no longer exists one cavity, but several small pockets, separated by bands of organizing granulation tissue. Epithelization is delayed, sometimes indefinitely; and in spite of the most skilful and devoted after-care a surgical failure often results.

The introduction of the Thiersch graft was an important advance. If a skin graft can be persuaded to "take," the overgrowth of granulations is prevented and the interior of the mastoid cavity rapidly becomes covered with skin. Skin grafting is widely employed by aural surgeons, and to hold the graft in place the cavity is firmly packed with gauze or some other pressure dressing.

Split-thickness grafts of skin can be firmly fixed to their new beds by the precipitation of fibrin between the graft and its bed. This is brought about by the addition of thrombin to plasma. This technique has been employed in general surgery, and in the repair of extensively burnt areas, by Tidrick and Warner (1944), by Young (1944), and by Cronkite, Deaver, and Lozner (1944a, 1944b) amongst others. Young claims priority in the use of fibrin fixation alone without pressure dressings.

This method has been adapted to allow the fixation of skin grafts in the radical mastoidectomy cavity without the use of packing.

At the completion of the bony "exenteration," and of the cutting and suturing of the meatal plastic flap, great care is taken to secure haemostasis. The retroauricular wound is sutured completely. A Thiersch graft is cut from a hairless area of the thigh. Bleeding from the donor area is stopped by running a little of the thrombin solution over it. The graft, which should be about 1½ by 1½ in. (3.8 by 3.8 cm.) square, is spread on tulle gras, raw side uppermost. Young states that washing the graft in saline removes coagulable elements from its surface, and no attempt should be made to wipe off any drops of blood or serum. The surface of the graft is then coated with plasma. This is the ordinary stock plasma of the "bank," and is sent up fresh on the day of the operation.

The graft is left to soak in the plasma while attention is again turned to the mastoid cavity. All excess clot is removed by aspiration, and the interior is dusted lightly with a sulphonamide powder. Whatever powder is used, only the lightest dusting is permissible, as too much may act as a barrier to the early vascularization of the graft.

The skin graft and its attached tulle gras are cut into two or more pieces, depending upon the shape of the cavity to be covered. Before laying these grafts in place the excess of plasma is shaken off and a few minims of thrombin added both to them and to the surface of the bony cavity. The tailoring of these pieces of skin is admittedly difficult, but it is made much easier than it would otherwise be by the fact that each piece can be stuck accurately in its allotted place like a postage stamp. A few moments' pressure with a narrow strip of gauze suffices to fix the graft in position, when the pressure can be relaxed and the gauze withdrawn. The process is then repeated with the next graft. Several small grafts are deliberately employed rather than a large one. A single graft lying in a complex cavity tends to fall into folds and creases, so that air spaces form beneath the graft. These dead spaces rapidly become filled with blood, which insinuates itself more and more under the skin and so prevents a successful "take." For the same reason, it is good practice to puncture the grafts with a very fine needle to allow any exudate to find its way to the exterior rather than be pent up between the skin and its bed.

When the operation is complete the cavity can be seen covered with the grafts, still with their tulle gras backing in place. These small pieces of gauze are left till the first dressing on the fifth day, when they can be painlessly picked out without loosening the grafts. No other packing is left in the cavity. The dressing of the radical mastoidectomy wound is thus rendered relatively painless. The subsequent dressings are done daily and consist in picking out desquamated outer layers of the skin grafts and removing secretions.

The placing of grafts on an infected bed is always something of a gamble. The surgeon's judgment of the virulence of the infection will dictate whether he will graft at the time of the original operation or defer it until bacteriological examination of the wound suggests that the chances of a "take" are greater. Young states that in grafting an infected area, fibrin fixation alone, without pressure dressings, gives less satisfactory results than when pressure dressings are employed. He states that this applies more particularly to large thick grafts, and that small thin grafts have about the average expectancy of survival.

In this manner 47 mastoidectomy cavities have been grafted. Of these, 30 were classical and 17 modified radical mastoidectomies. Primary grafting was carried out in 38, delayed in 9. The graft failed entirely to take in 4 cases, in 29 there was apparently complete survival of the graft, and in the remaining 14 over 75% of the graft survived.

Summary

Thrombin has proved of little value in arresting haemorrhage from the tonsillar fossae and in epistaxis.

Used in nasal and mastoid surgery, it permits dispensing with gauze packing, particularly after submucous resection of the nasal septum, and retaining skin grafts in the radical mastoidectomy cavity.

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STAPHYLOCOCCAL SPINAL OSTEOMYELITIS WITH ACUTE EXTRADURAL ABSCESS

BY

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An analysis by Dandy in 1926 showed that 25 cases of spinal osteomyelitis with extradural abscess had been reported up to that time. Only two of the patients recovered, and except in one case there was "no evidence to indicate that the nature of the lesion was more than roughly guessed" (Taylor and Kennedy, 1923). The concluding words are also of interest: "Whether an epidural abscess may eventually be diagnosed before implication of the spinal cord and before the appearance of a spinal block remains to be seen."

Numerous authors since that date have recorded cases successfully diagnosed and surgically treated (Abrahamson, McConnell, and Wilson, 1934; Stammers, 1938; Browder and Meyers, 1941).

As late as 1944, however, when the clinical syndrome had long been accurately defined in the literature, Boger states: "From the literature, as we have reviewed it, there are 84 operated cases with a mortality of 35%." All authors agree that in non-operated cases the disease is invariably fatal. The mortality, then, can reasonably be associated with delay in making the diagnosis—a state of affairs less likely to obtain when the clinical syndrome of fever, spinal muscle spasm, and pain in the back of rapid onset and in a site where alternative possibilities are rare gains more general recognition. The coincident osteomyelitis of the spine and incipient neurological signs are indications for surgery without delay.

The surgical technique, when reported, has been that common for all abscesses—namely, incision (by an extensive laminectomy to the limits of the extradural abscess) and drainage, either by repeated packing or by a large-bore drainage-tube (Stammers, 1938; Mixter and Smithwick, 1932). The natural outcome of this has been a lengthy and difficult period of hospital treatment while the spinal cavity collapsed or a sinus closed. Early diagnosis, however, should allow primary closure in a high proportion of cases, as the original focus of infection is frequently laminal and therefore easy of access. The organism, moreover, is most commonly a penicillin-sensitive staphylococcus.

The advantages of immediate closure of a spinal wound are, in fact, so striking, alike to patient and to nursing staff, that we have been prompted to record this single successful case.

Case Report

L/Cpl. J., aged 36, was admitted to the medical division of a military hospital on Jan. 19, 1946, with the provisional diagnosis of "lumbago." He was complaining of general malaise and a constant severe dull ache in the left lumbar region. This had begun eight days previously, and was aggravated by any movement of the spine—so much so that he was unable to turn over in bed without extreme discomfort. The pain was not worse on coughing or sneezing, but latterly had radiated down the back of both legs. There was no relevant previous history or any recent minor sepsis. Micturition was normal; temperature 100° F. (37.8° C.), pulse rate 70. The left lumbar musculature was in spasm with a marked scoliosis to the right. There was decided tenderness to deep pressure over the erector spinae at the level of L 3–4 and below and medial to the renal angle. Flexion of the neck caused an increase in lumbar pain, but there were no abnormal neurological or genito-urinary findings. White cells, 8,000 per c.mm., polymorphs 90%, lymphocytes 7%, monocytes 3% (repeated twice). Erythrocyte sedimentation rate, 99 mm. per hour (normal 8).

Jan. 20.—Temperature, pulse, and respiration normal. The left paralaminal musculature opposite L 3–4 was more acutely tender than on the previous day and showed slight swelling and increase in local heat. There was no tenderness over the spinous processes. A diminution was noted in the left ankle-jerk.

Jan. 21.—An exploration by needling showed thick creamy pus in the paravertebral groove deep to the area of tenderness. Skiagrams failed to demonstrate any bony lesion in the lumbo-sacral vertebrae and there was no distortion of the psoas shadow. As the left ankle-jerk was still noticeably weaker than the right a diagnosis was made of osteomyelitis of the lumbar spine with extradural abscess.

Jan. 22.—The bacteriological report showed that *Staphylococcus aureus* had been isolated in the pus. No tubercle bacilli were seen in Ziehl-Neelsen films. Operation was therefore undertaken without delay. A midline incision was made from L 2 to S 1. Thick creamy pus was found in considerable quantity deep to both erector spinae muscles. The laminae of L 3, 4, and 5 were soft and necrotic and were removed, releasing an extradural abscess of thick pus, extending up to L 2 and down to S 1. It had not separated the close dural attachment to the posterior common ligament except inferiorly. The dura over an equivalent area was covered by fleshy greyish-red granulations. It was everywhere intact and pulsated freely. The wound was completely closed by layered catgut sutures and a small penicillin tube was brought to the lower end of the extradural abscess by a separate stab incision.

2,500 units of penicillin in 5 ml. were instilled twice daily down the tube for five days, and 15,000 units were administered parenterally three-hourly for 14 days.

Immediately after operation the patient became free from the severe aching lumbar pain and was able to move freely about the bed. His temperature showed a nightly rise of 1° for the first week, but after that it settled. The lumbar wound and the penicillin stab incision healed by first intention, and he started vigorous physiotherapy at 10 days. He was walking at the end of the first fortnight and his ankle-jerk had returned to normal. At the end of two months his white cells numbered 8,000 per c.mm. The sedimentation rate was 8 mm. per hour, and, beyond the deficiency due to the laminectomy, there was no evidence of bone disease. He was symptom-free and ready to return to duty.

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Medical Memoranda

Intussusception after Emergency Colostomy

The following case is placed on record because of the uncommon type of intussusception.

Case Report

We were called to see a man aged 74 on the night of Sept. 27, 1945. He complained of abdominal distension and constipation for 10 days. A soapsuds enema was given with excellent result. This was repeated the next morning, but neither faeces nor flatus was passed. He was admitted to St. Vincent's Nursing Home under Mr. Hamilton Bailey for complete intestinal obstruction.

On admission his clinical condition was very poor. The pulse was barely perceptible, his face was pale and his extremities, especially the feet, were deeply cyanosed. Gastric aspiration produced a small quantity of bile-stained fluid. In the operating theatre continuous intravenous glucose-saline was administered. After he had received one pint (568 ml.), together with a hypodermic injection of methedrine, his pulse and colour became a little better, but, whereas previously he had lain in a quiet semi-comatose condition, he now became noisy and restless, especially when some local analgesic was introduced into the skin of the abdominal wall. Infiltration was continued with the objective of transverse colostomy, but it was impossible to quiet the patient sufficiently for the operation to proceed under local analgesia alone. Pentothal was injected into the saline delivery tube, less than 0.05 g. being given. He fell asleep. A loop of colon was delivered through the incision; it was of the dimensions of the inner tube of a motor tyre. In passing it was noted that the loop was not of a transverse colon as would be expected from the position of the incision; the mesocolon was not attached to it. The apex of the loop was opened and a rubber tube was sewn in. Much gas but no faecal matter escaped. After completing the colostomy the patient was returned to bed with little hope of his recovery. For three days he remained in a more or less moribund state, and, although the distension had assumed less extravagant proportions, he was still distended and the colostomy had not acted. On the evening of the third day, after diligent irrigation through the colostomy, the patience of the sister in charge was rewarded by a copious motion. From that time his condition steadily improved, and at the end of three weeks he was convalescent. A barium enema revealed ballooning of the pelvic

colon, and barium issued from the colostomy opening. No sign of an obstructive growth of the colon was seen, and a tentative diagnosis of volvulus was made. Uncertainty as to the exact nature of the obstruction, his advanced years, and his erstwhile moribund condition were the factors that led to a decision to send him home with a colostomy belt and with the proviso that if all went well his case was to come up for review in three months' time.

Three weeks after this there was a prolapse of about 2 in. (5 cm.) of gut through his colostomy opening, which we successfully reduced. On Jan. 13, 1946, we were hastily summoned and found more than a foot (30 cm.) of gut prolapsed through the colostomy opening. The appearance was that of a dark sausage-like mass issuing from the colostomy. We endeavoured on two occasions in the next few hours to reduce the intussusception without success. The patient was in good condition, without pain or even discomfort. Mr. Hamilton Bailey came down and wrapped the intussusception in a towel and squeezed it for some moments in order to reduce the oedema. This appeared moderately successful. He then proceeded to attempt to reduce the apex in accordance with the orthodox method of reducing a paraphimosis. This also was partially successful, but about 4 in. (10 cm.) still remained without. Up to this time the patient had had but little pain. An effort was made with greater force, and the surgeon's thumb passed right through the mucous membrane and entered the peritoneal cavity, some clear peritoneal fluid escaping. Shortly after this some of the intussusception which had been reduced was extruded. The patient was sent to hospital. Under general anaesthesia Mr. Bailey freed the colostomy opening (with the intussusception protruding therefrom) from the abdominal wall and delivered 18 in. (45 cm.) of distal redundant colon and about 8 in. (20 cm.) of proximal colon. The intussusception had begun in the colon proximal to the colostomy opening. Before proceeding further it was ascertained by intra-abdominal palpation that there was no growth or other abnormality to account for the original obstruction. The two limbs of the colon were anastomosed by the Paul-Mikulicz procedure, and the intussusception, together with the redundant portion of the colon, was excised. The total length of colon removed, which included the intussuscepted portion, was nearly 3 ft. (90 cm.). The patient made a good recovery.

COMMENTARY

Intussusception is usually seen only when the abdomen is opened by the surgeon on the operating table, but the exceptions are the rare types that extrude through a colostomy or similar artificial opening, and those rare ones seen passing out through the anus. Very few cases of the former type have been recorded—one, by Milligan (1926) of an intussusception through an enterostomy and one by Turner (1936) in an article on the various complications of colostomies. The latter case was the only one in 175 cases of various complications of colostomies. Both these cases were treated in the same way as the one described above.

We are indebted to Mr. Hamilton Bailey for his co-operation and kind help in the preparation of this report.

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A. LIONEL ROWSON, M.R.C.S., L.R.C.P.

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Plant Dermatitis in the Bahamas

The shrub *Metopium toxiferum*—"poison wood" or "poison bark"—flourishing throughout the open spaces of the Bahama Islands and in southernmost Florida (where it is also known as "doctor's gum"), has attracted little attention outside the immediate vicinity. Yet it contains a toxin at least as powerful as that of the well-known North American "poison ivy" (*Rhus toxicodendron*), thereby entitling this colonial product to at least a short note.

Botanical Note.—The plant *M. toxiferum*, of the family Spondiaceae (Small, *Florida Trees*, p. 60), varies in size from a small shrub to a tree 40 ft. (12.2 m.) high (Britton, *Bahamas Flora*, p. 244). The bark is thin and brown, with a moist, green, shining layer beneath, which becomes orange with increasing age. Its branches are widely spreading, and the leaves, up to a foot (30.48 cm.) long, alternate, with three to seven ovate, pinnate, glabrous leaflets, bright green and shining on top and dull on the under surface. The efflorescence is a many-flowered compound raceme with short pedicle. Florets have five short ovate sepals, five white separate petals, and five separate stamens with large anthers. The fruit is a green drupe, becoming yellowish when ripe.

The Toxin.—This is contained in the "milk" beneath the bark, in the leaves, and in the fruit. On the bark and leaves it frequently oozes up to the surface, where it or some other product associated with it in the juice becomes oxidized and produces black stains. It is a type of gum resin, very similar to that of poison ivy.

CLINICAL NOTE

Many R.A.F. personnel engaged on clearing undergrowth around the station were affected. Among the white residents there is regularly at the New Year a crop of cases of poison-wood dermatitis, following the incautious gathering of Christmas trees.

After contact with the toxin there are usually no symptoms for a few days, when small papules, rapidly becoming vesicular, appear at the site of contact, with considerable itching and variable surrounding erythema. Superficial ulceration of these vesicles occurs, and the rash spreads both locally and to distant parts of the body. Crops of small, deep-set papulo-vesicles appear on face, trunk, and legs. Local weeping and crusting eczematization may occur, and the whole process continues for weeks after the initial contact. Sometimes the reaction is more urticarial, with gross erythema and oedema affecting and directly spreading from the contact area. In less sensitive people retrogression of the rash may occur at any stage. In one patient blisters up to an inch (2.5 cm.) in diameter formed over hands, forearms, body, face, and legs, breaking down to superficial ulcers, some of which became secondarily infected. The appearance resembled a papulo-necrotic tuberculide. He was febrile on admission, and remained in hospital 20 days.

SENSITIVITY TO THE TOXIN

One drop of juice from the underbark of a plant 5 ft. (1.52 m.) high was placed on the forearm of each of twenty volunteers. One developed a generalized spreading rash lasting several weeks, one a severe local erythematous reaction, 12 local papulation of varying degree, and 6 were unaffected. On my own arm itching occurred a few minutes after application, followed by the characteristic black staining and the development of a small papule by the next day. The local area became eroded after four days, with superficial ulceration and surrounding vesiculation. Resolution started on the seventh day. One drop of berry juice, however, caused a widespread erythematous vesicular eruption lasting some weeks. (This was not due to acquired hypersensitivity, since subsequent drops from the bark actually produced less reaction than the first.)

The phenomenon of generalized spread to non-contact areas seemed to indicate the production of a general allergic cutaneous tissue reaction of systemic dissemination. However, the possibility existed that the original toxin or product of it lurking in the blister fluid at the contact site was carried over the body by the patient's finger, producing multiple local reactions. Blister fluid from one patient with the disseminated rash was therefore tested on other parts of his own skin and on the skin of other sensitive subjects, with and without previous excoriation of the skin by a needle. In no case was any lesion produced, so that the hypothesis of contact spread would seem to be disproved.

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Traumatic Axillary Venospasm

This condition has been described by various people, especially Matas, and was first recognized about 60 years ago. It occurred most commonly on the right side, and various theories have been advanced to account for it. Sudden abduction of the arm may cause trauma to the axillary vein by contact with the subclavius muscle; this may either give rise to a generalized venospasm or actually damage the intima of the vein, with venospasm and thrombosis, hence the name "traumatic axillary vein thrombosis." Matas says that there is a polyvalent causation, in indirect trauma to the vein and its immediate environment, including lymphatics and perivenous sympathetic plexus, and that thrombosis is not essential.

The case described below is one of traumatic axillary venospasm without thrombosis, and in this instance the opportunity of observing the veins and brachial artery was taken. The brachial artery was very sensitive and the slightest handling was sufficient to put it into spasm, so apparently there must be a generalized increased sensitivity of the neurovascular make-up of this particular patient to account for the condition. The treatment adopted—cervical sympathetic block—does not claim to be original, but I have not seen any reference to it. The cervical sympathetic block has a twofold effect—viz., it relieves the venospasm, and also the arteriospasm, which in time will increase the venous return.

CASE REPORT

The patient was a female aged 35, married, but with no children, and was admitted complaining of swelling of the left arm, which was tense but not very painful. She said that four hours ago, when putting her left arm into her overcoat sleeve, she felt something

catch in her axilla, and that almost immediately her whole arm began to swell and felt useless, tight, and tense. There was no previous history of a similar condition.

On examination her general condition was seen to be good. Her temperature was 98° F. (36.7° C.), and her pulse rate 70. The left arm was diffusely swollen, tense, and blue from the middle of the deltoid muscle to the finger tips. The superficial veins on the dorsum of the hand were congested, and failed to empty on elevating the arm above the head. The upper chest veins were congested, but emptied on compression. The axillary vein was not palpable. The radial pulse was diminished in volume in comparison with the opposite side. There was no increase in heat of the limb. A small laceration was visible over the lower part of the cubital fossa, which had occurred about ten hours previously.

Operation.—A general anaesthetic was given, and it was decided to explore the laceration in the lower part of the cubital fossa to see the state of the vena comitans of the brachial artery. All the veins encountered were in a state of spasm and failed to bleed on cutting. The brachial artery was seen and appeared normal. It was retracted very gently and immediately went into spasm, showing the excessive sensitivity of the neurovascular system. The radial pulse at this stage disappeared, so it was decided to close the wound. The patient was then turned on her right side and a cervical sympathetic block was performed. The stellate ganglion and the second and third left thoracic ganglia were injected with 10 ml. of 2% procaine each by the posterior approach. On turning the patient on her back it was noticed that the hand was now becoming pink and that the radial pulse, which had disappeared after the brachial artery spasm, was now returning.

One hour later the radial pulse had fully returned; the hand was now pink and the superficial veins were empty. Twelve hours later the swelling of the hand and forearm had disappeared and the colour was normal. The upper arm, however, was still discoloured pink rather than the previous blue, and still swollen, but not so much as it had been. Twenty-four hours after the sympathetic block the whole arm was back to normal, and after that the patient made an uninterrupted recovery. *X*-ray examination failed to demonstrate any sign of cervical ribs.

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A Case of Secondary Syphilitic Iridocyclitis

Duke-Elder states that a severe and acute iridocyclitis is not uncommon in the early secondary stage of syphilis; thus, among 10,000 syphilitics studied by Moore (1931) at the Johns Hopkins Hospital, the expectancy of its development with the generalized secondary outbreak was 4.5%. I have not seen any comparable R.A.M.C. figures, but have the impression from R.A.M.C. venereologists that the complication is much rarer than this, and therefore the occurrence of a case is interesting enough to report. It is the first one I have personally seen in 3½ years in the Army.

CASE HISTORY

B. W. reported on Feb. 21, 1946, that both eyes had been inflamed for two weeks. He was found to have a mild bilateral iridocyclitis with fine keratitis punctata in each eye, a roseola of fine blood vessels on each iris, and posterior synechiae in the left eye only. He had a history of venereal infection two months ago, and gonorrhoea two years ago. General examination revealed secondary syphilis: the prepuce had an irregular margin and multiple ulceration round the edge; there were moist papules at the peno-scrotal junction; condylomata were present in each groin, with inguinal adenitis; no generalized rash was seen; the tonsils and pharynx were both congested. The Kahn test was positive.

Sodium penicillin 10,000 units 3-hourly for one day gave no Jarisch-Herxheimer reaction, so the dosage was increased to 40,000 units 3-hourly for 7½ days. With the penicillin were given daily mepharside injections to a total of 0.56 gr. (36.4 mg.) in 15 days. Atropine ointment and heat were used for the eyes. In one week they were much improved, with disappearance of the roseola, and in two weeks the ocular condition had entirely subsided, the only sequelae being a few pigmented dots of keratitis punctata, one posterior synechia, and a little pigment on the anterior line capsule in the left eye.

I wish to express my thanks to Major R. S. Garden, R.A.M.C., A./O.C. 48 British General Hospital, for permission to publish this paper.

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The Manchester Ear Hospital has been at work for ninety years, and now receives patients from areas as far distant as Derbyshire, Wales, and London. Owing to staffing difficulties and redecoration of the wards fewer patients were admitted last year than in the previous one (744 against 849); but on the other hand 6,816 new out-patients were treated—an increase of 72.

Reviews

RARE DISEASES

Rare Diseases and Some Debatable Subjects. By F. Parkes Weber, M.D., F.R.C.P. (Pp. 174; illustrated. 15s.) London: Staples Press Ltd.

As Dr. Parkes Weber truly remarks, it has been repeatedly suggested to him during the last thirty years that he should write a book on rare diseases. It is, therefore, somewhat disappointing to find signs of hasty compilation. This detracts from the pleasure of reading but not from the value of the book. He recognizes that the importance of a rare disease lies not merely in its rarity but in the light it throws on less extreme departures from the normal and sometimes even on the normal itself. He shows how some of the rare syndromes may involve a large number of systems in the body, but minor versions of such syndromes occur, so that there is a continuous series from the complete form to *formes frustes*.

In the earlier part of the book a useful classification is observed according to which tissues are mainly involved. The real gist of his argument is explained best in Chapter 16, entitled "Inborn and familial tendency to the development of hepatic cirrhosis." This enables him to develop his views of the inborn tendency of an organ inferiority as the basis of most of the diseases he is considering. He speaks of these as the congenital-developmental class under the convenient inclusive term "dysbiotrophy." Here his comments on Kinnier Wilson's description of progressive lenticular degeneration combined with cirrhosis of the liver are of special interest. Familial incidence in this rare disease has been emphasized by Wilson himself as well as by later authors. The association between these two conditions seems curiously remote and yet there are other instances of this connexion. Some of these hepatic conditions may work in either direction; thus the telangiectases of the Osler type may occur in families and involve haemorrhage from the stomach without the presence of any skin lesions. In some of these cases hepatic cirrhosis has been found—presumably due to a congenital dysplasia of the small blood vessels, including those of the liver. Conversely, in advanced hepatic cirrhosis, spider-like telangiectases are common on the face and hands. Here they follow and do not anticipate the cirrhosis.

It will be seen that the book even in its present form is a mine of interesting information which may well cause us to think. Apart from our initial criticism we can cordially congratulate the learned author on putting on record so much that is helpful.

A PHILOSOPHY OF SEX

Sex, Life, and Faith. A Modern Philosophy of Sex. By Rom Landau. (Pp. 319; illustrated. 21s.) London: Faber and Faber.

The author is not a doctor or a priest, but certainly has a large experience and knowledge of life. From this he has learnt the basic material of how man and woman have approached the problems of sex and behaved in this respect throughout the ages in all sorts of communities and under all sorts of conditions of society. What makes the wealth of material expounded in this book so valuable is that the author has throughout been able to expound it without prejudice and with a sympathetic understanding of why any particular behaviour has manifested itself. Whether he is dealing with polygamy, polyandry, homosexuality, or any other manifestation of the sexual urges of men and women, he is equally open-minded and objective. Though maintaining that the monogamous union is the ideal he realizes that this cannot be reached unless the union itself is ideal in that it really satisfies the aspirations of both partners. There must be no repression, false shame, or reservation on either side, and he recognizes that without this the ideal of sexual behaviour is to all intents and purposes unattainable. Nevertheless, such an ideal is in the author's view attainable in certain conditions. First, it is necessary to sweep away all prejudices and false values such as are maintained by the puritans, the respectable, and the smugly complacent people who make up such a large proportion of our moralists and ecclesiastical experts. Secondly, it is necessary to recognize fully the importance, strength, and essential place in life of the sexual instinct and

allow for its full gratification for both men and women by modifying our social education and probably many of our laws and customs. Thirdly, and most important of all, the religious "instinct"—the author is convinced that this is innate and fundamental in everyone—must be developed and strengthened into a firm belief in God.

The author pours scorn on the emotional revivalist schools and the puerilities of certain fashionable groups, but believes that by genuine private effort a real conversion may be attained which will result in a true control of the sexual instincts so that a solution to the conflict between sex and "morals" may be found. How many people will be able and willing to make the effort to achieve this victory is open to question, but whoever is interested in the social life of our times—and surely doctors above everyone must be or ought to be—should read this sincere, erudite, and clearly written book.

DERMATOLOGY AND SYPHILOLOGY

The 1945 *Year Book of Dermatology and Syphilology*. Edited by Marion B. Sulzberger, M.D. Assistant Editor, Rudolf L. Baer, M.D. (Pp. 559; illustrated. $3.00 or 18s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

This now well-known annual keeps up its reputation and we admire the industry of the editors in collecting and presenting such a mass of contemporary literature in brief form. Notwithstanding their statement that great advances have been made in dermatology during 1945, we do not recall any specially noteworthy advance, though there is evidence of great activity in every department. Perhaps, however, 1945 will stand out in the history of dermatology as the year in which the treatment of lupus vulgaris by calciferol was first instituted, and that method, initially tried by Dowling at St. Thomas's, London, appears to have been published too late for mention in the year book before us.

The special article with which the editors always begin is this year devoted to skin tests in drug eruptions and also their management. There is an important addendum on the lichenoid dermatosis due to atabrine (usually spelt atebrin on this side of the Atlantic) with which the anti-malarial measures pursued so vigorously in the Eastern theatres of war have made us painfully familiar. In venereal disease much space is rightly given to the discussion of the place of penicillin in the treatment of syphilis. There seems to be a consensus of opinion that the best results are obtained by a combination of penicillin with the arsenical antisyphilitic drugs, and bismuth is not yet superseded. It is sad to think that the progress made between the two world wars in reducing the ravages of syphilis has been very largely lost during the second, nor are the conditions prevailing during the long-drawn-out armistice, especially in Europe, such as to help in regaining the lost ground. In the American Forces in Europe venereal disease has become the No. 1 medical problem. The editors think it probable that the post-war civilian population will continue to present venereal disease problems as great as those which followed the last war. In mitigation of this gloomy outlook it may at least be said that owing to penicillin and the sulpha drugs the period of effective treatment has been greatly shortened.

A cheerful feature of this year book, as of recent numbers, is the "Quiz Section" on the dust jacket. It really deserves incorporation within the bound volume. Those who fancy that they are well abreast of dermatological literature should test themselves on the twenty questions posed. We doubt if there are many, even in the ranks of dermatological specialists, who would get a 50% marking at this examination. Deficiencies can be made good by study of the text.

ADULT PSYCHIATRY

Essentials of Neuro-Psychiatry. A Textbook of Nervous and Mental Disorders. By David M. Olkon, M.D. (Pp. 310; illustrated. 22s. 6d.) London: Henry Kimpton.

In this new survey of psychiatry the author sets out to present a conception of body–mind unity, but as so often happens there is more stress on the contribution of the body than of the mind. As in so many textbooks of psychiatry the section on psychoneuroses is weak, with too much relative attention to hysteria at the expense of the much more fundamental anxiety state. Though not specifically stated, the book is obviously directed to those who are dealing with or will have to deal with war psychiatry, yet there is no recognition that in World War II the dramatic presentations of hysteria are much less important than the fear neuroses. In a comment on a case history of a hysterical girl the author remarks "the interesting feature is that there is such an entity as conversion hysteria." This sort of bias is evident throughout, and there is no real appreciation of modern medical psychological methods and their success in treatment.

The discussion of the psychoses is better but is rather unequal; the subject in which the author is himself particularly interested being given more prominence than is usual in what purports to be a comprehensive textbook. Thus there is an interesting discussion on the role of the capillary dysfunction in schizophrenia, and the reader is left wishing that all other aspects of this and other conditions were equally well dealt with. Again, in the section on sexual perversions sadism is dismissed in a small paragraph while transvestism is discussed at length, but perhaps without great enlightenment, because the author had one or two cases under his own observation. In order to keep the book within small compass there is a great deal of compression, and while most subjects relating to psychiatry will be found mentioned consecutive reading is not easy. The subject-matter deals almost exclusively with adult psychiatry, and although cases of adolescent abnormality are quoted there is no appreciation of modern child psychiatry.

Useful hints of relevant literature are given at the end of each chapter and the book is well illustrated by case histories and excellent photographs and diagrams.

Notes on Books

At Lambaréné in Wartime is the title of British Bulletin No. 18 (Spring, 1946) of Dr. Schweitzer's Fund. This pamphlet, written by the gifted musician himself, covers the history of his hospital in French Equatorial Africa from 1939 to 1945. The hospital escaped direct damage from the war, for both sides agreed not to bomb it during the short struggle between the de Gaullist and Vichy forces in the colony. But indirectly the war so increased the normal difficulties of administration that the work of the hospital had to be heavily curtailed, and, but for remarkable foresight shown in the buying of provisions and in other matters, it would have had to be closed altogether, to the great detriment of the wide area which it serves. The booklet may be obtained (price 1s.) from Mr. T. D. Williams, Treasurer, British Council for Dr. Schweitzer's Hospital, 5, Castleton Mansions, London, S.W.3, to whom all subscriptions or donations may be sent.

The fifth series of *Exposés Annuels de Biochimie Médicale* has been prepared under the direction of Prof. MICHEL POLONOVSKI of the Paris Faculty of Medicine. It is published by Masson et Cie, 120, Boulevard Saint Germain, at 500 francs. The ten contributions by twelve authors deal with various important aspects of medical biochemistry. Most of the longer papers have bibliographies, though for reasons that all can understand the references to Anglo-American work do not cover publications since 1942. These valuable reviews began in 1938; the second of the series was published in 1939, the third in 1942, the fourth in 1944, and the present volume is dated 1945.

Dr. A. P. CAWADIAS's study of hermaphroditism, which was originally given as the Vicary Lecture at the Royal College of Surgeons in 1940, evidently attracted a good deal of attention, for a second edition of the book, *Hermaphroditos: The Human Intersex* (William Heinemann Medical Books; 15s.), based on that lecture has been called for. In this edition the chapter on the physiopathology of intersexuality has been rewritten in order to make clearer the two great classes, constitutional and endocrine, involved. The clinical chapters have also been rewritten, so as to make clearer these forms as they manifest themselves. Much learning and thought have been devoted to this work.

PROF. FRANCIS J. BROWN'S *Antenatal and Postnatal Care*, first published eleven years ago, has now reached a sixth edition (J. and A. Churchill: 25s.). The continuing popularity of this book must be a source of much gratification to its author, who has carried on and amplified in London the pioneer work of John William Ballantyne in Edinburgh. He has revised the text throughout and made some changes and additions. Amendment was chiefly necessary in the chapter on erythroblastosis and the Rh factor (which was a new feature of the fifth edition), and in the chapters on placenta praevia, on the toxaemias of late pregnancy, and on venereal diseases in pregnancy. The chapter on the uses and value of radiology in obstetrics has again been revised by Prof. Chassar Moir.

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ASSESSMENT OF DISABILITY IN DUST DISEASES OF THE LUNG

Pendergrass and Leopold[1] have recently suggested that the form of dust inhalation that occurs in electric arc welders and workers exposed to similar dusts should be called "benign pneumoconiosis" in order to contrast it with diseases resulting from the inhalation of siliceous matter. The latter produces a fibrous reaction, and even if tuberculosis is not a complicating condition the lung is still gradually destroyed. At the same time it is necessary to stress that the lung cannot become a physiological dust trap and yet retain its normal structure and function. It would seem possible that heroic quantities of any dust, no matter how innocuous they might be in small concentrations, would in time overwhelm the defences of the lung and accumulate in such amount as to impair function. Such a form of lung disease would obviously be due to mechanical causes—the physical presence of large amounts of inert foreign material.

Since pneumoconiosis is an industrial disease the question of compensation under the Workmen's Compensation Act always arises. Compensation is paid for disability acquired by the workman through the inhalation of dust while at work; it has, however, always been recognized that the diagnosis of the disease and the assessment of disability are difficult. For this reason the highly complicated silicosis Acts were passed by Parliament and the Silicosis and Asbestosis Board was created. But difficulty of the assessment of disability is still there, and at present it is decided largely by radiographical appearances. This method is not satisfactory because it is impossible to differentiate between the nodulation caused by iron oxide in the siderosis of arc welders and that shown by the fibrous nodules of silicosis. Similarly, the reticulation in lungs of arc welders, South Wales coal-miners, and the workers in iron foundries are essentially similar; yet the men with iron oxide in their lungs suffer little or no disability, as was first suggested by Doig and McLaughlin[2] and recently demonstrated with full physiological tests by Enzer, Simonson, and Evans.[3] After their survey of chronic pulmonary disease in South Wales coal-miners Hart and Aslett[4] suggested that the inclusion of reticulation as a compensatable disease would not lead to any large increase in the certification rate, because only a small proportion of these cases were significantly disabled; but, in fact, the enactment of the Pneumoconiosis in Coal Miners Bill, 1943, has been followed by a very large increase in the number of certifications. This is due to the difficulty of assessing disability, and there is no doubt that many men with reticulation who are not disabled are obtaining disablement certificates. It would seem, therefore, that compensation should not be awarded until disability actually occurs, which may be quite a long time after characteristic *x*-ray changes are detectable. If these are discovered and there is no disability the man should be removed from the silicosis risk and trained to fill a job which will give him equal or better prospects in life.

It is therefore essential to look for some other than the *x*-ray method of assessing disability—a method that must also be simple and practical and can be used by those undertaking surveys in factory and mine and by the Silicosis Board, besides those engaged on work in the laboratory and on long-term projects. Attempts have been made to arrive at some measurement by comparing the areas of the lung fields on radiographs in expiration and inspiration. In the clinical examination of pneumoconiotics the two most valuable observations are the marked diminution of air entry on auscultation and the poor chest measurements on inspiration and expiration, and it is hardly likely that more information than this can be obtained from *x*-ray examination. However, McCann and Kaltreider[5] have suggested that if the ratio of the areas of the lung fields measured with a planimeter on *x*-ray films of the chest doubly exposed at maximum inspiration and maximum expiration exceeds 71% there will certainly be disability. Other possible methods of gauging disability include reactions to standard exercise, measurements of oxygen content of blood, blood sedimentation rates, and estimation of lung volume, including vital capacity and residual air. The fact that no two workers employ exactly the same exercise-tolerance test is itself evidence of the unsatisfactory nature of these tests, and it is doubtful if complicated exercises involving the use of dumb-bells or pedalling bicycles give much more information than simple stepping up and down on a box. In any event little information is likely to be gained unless the disease is advanced and the disability obvious. Measurement of the oxygen content of the arterial blood is complicated by the fact that the technique of arterial puncture is difficult and the range of complete and incomplete saturation of the blood with oxygen is narrow. Nevertheless, this is a promising field of research, and if it is possible to develop an oximeter which can estimate the oxygen saturation of the blood from the lobe of the ear the solution of the problem might be in sight. Little work has been done on blood sedimentation rates, and nothing is known of normal levels throughout the day in the industrial population as a whole. Most patients, however, who have real disability from pneumoconiosis have an increased sedimentation rate: this may in part be due to infection either tuberculous or non-tuberculous, but it is quite possible that the onset of the disability is closely related to the onset of infection. It is therefore possible that the blood sedimentation rate will prove to be a valuable simple test.

Vital capacity is at present the best guide, and if tracings are taken in the way suggested by Christie[6] a permanent record is obtained. Vital capacity tracings are of no use for comparing one individual with another, but a series of tracings which show a decreasing vital capacity in a given individual over a period of time is of high significance.

[1] *J. Amer. med. Ass.*, 1945, **127**, 701.
[2] *Lancet*, 1936, **1**, 771.
[3] *J. industr. Hyg.*, 1945, **27**, 147.
[4] Med. Res. Cncl. Sp. Rep. Ser. No. 243, 1942, 191.
[5] *Penn. med. J.*, 1937, **40**, 901.
[6] *J. clin. Invest.*, 1934, **13**, 295.

By taking the weight and height or sitting height of the individual it is also possible to compare his actual vital capacity with the expected one for one of his surface area. The greatest difficulty of these tracings rests with the ability of the patient to co-operate; some persons develop a sense of suffocation and are quite unable to perform the test, and when men seeking compensation are under review the operator can never be certain that they have emptied or filled their lungs to the limit. This can to some extent be checked by measurement of the residual air, and McMichael's[7] modification of Christie's method is comparatively simple, as is that described by Cornand.[8] McCann and Kaltreider[5] have shown that a decrease in the total capacity and the vital capacity of the lungs, with an increase in residual air, is usual in advanced pneumoconiosis, and they consider that when the ratio of $\frac{\text{residual air}}{\text{total capacity}}$ exceeds 40% some degree of functional impairment is usually apparent. These authors also attempted to combine this method of investigation with a response to exercise, and thought that a better method of estimating disability was that of measuring the total ventilation during five minutes of exercise at the rate of 300 kilogramme/metres per minute and three minutes of subsequent rest. The resulting ratio $\frac{\text{total ventilation}}{\text{vital capacity}}$ is of great functional significance. They found that in normal healthy men the ratio varied from 20 to 48, and that when the value rose above 55 shortness of breath was experienced. Estimations of the pulmonary reserve at definite rates of work also give an index of functional ability. Normal men have a pulmonary reserve of 55 to 73% when working at 300 kilogramme/metres per minute when they are using 27 to 45% of their maximal ventilating capacity, and dyspnoea is experienced when 50 to 60% of the maximal ventilating capacity is used.

The present situation may then be summarized by saying that there is no satisfactory simple method of assessing disability. Consideration must be given to physical examination, chest measurements, blood sedimentation, and vital capacity; the presence of *x*-ray shadows in the form of reticulation, or even nodulation, does not of necessity mean that the patient is disabled. C. M. Fletcher, who is directing the Medical Research Council's Pneumoconiosis Unit in South Wales, is fully aware of all the difficulties and knows that until this problem is solved no great advance in the study of silicosis is possible. He is therefore devoting much time and man-power to research on the problem, and it is to be hoped that his efforts will soon be rewarded and some simple method of assessing disability developed.

MALARIA AND ITS CONTROL IN MALAYA

Control of malaria, from being a somewhat experimental and one might almost say often a rather debatable performance, has within a relatively few years become, partly as a result of increased knowledge and experience in carrying out measures against the disease and partly due to development of more effective insecticides and methods of using these, a highly practicable proposition in which, if essential requirements are recognized, success may be assured. In a pamphlet entitled "Notes on Malaria and its Control for Planters and Miners," issued from the London School of Hygiene and Tropical Medicine, incorporating the Ross Institute of Tropical Hygiene, Dr. G. Macdonald, director of the institute, has explained and illustrated in simple language the problem of malaria and its control. The pamphlet is published under the authority of the Ross Institute Industrial Advisory Committee of the Malayan Chamber of Commerce and the Rubber Growers Association and has been especially written as relating to conditions in Malaya, though expanded to give some information applicable to most areas where there is industrial development in the Tropics.

An interesting feature of this up-to-date account of the position of methods of malaria control is that it is written for the instruction and guidance of the layman and yet is something more than a merely popular account. What exactly is the position of the layman? He is clearly a deeply interested party in the matter, for it is he who will spend the money in carrying out such measures if he decides to do so and he to whom the benefits (if any) will come in terms of lowered costs or greater profits from such enterprises as he may be concerned with. It does not follow that he himself requires the knowledge and experience to carry out such measures, any more than the ordinary house occupier would be in a position to design his own water-carriage system. But it does follow that by appreciating what is involved in malaria control and having experience of some of the details of such work he is in a position not only to see it properly carried out but himself to do much to help. What may be called the higher strategy of malaria control, such as the decision on the type of measure best adapted to particular circumstances, is perhaps best left to expert advice, but there is a great deal that can be done by the planter, miner, or engineer himself in implementing such advice, and in this respect Dr. Macdonald's notes, giving as they do the essential facts the layman should know and a description of the different methods now in use, should be very helpful. Measures now mainly relied upon are various forms of drainage, dusting, spraying, and automatic petrolage with flushing devices for breeding-places; spraying, residual or otherwise, directed against the adult mosquito in houses and quarters; and, perhaps as important as any other measure, avoiding the creation of man-made breeding-places through ill-designed excavations, leaky water channels, and so on. In all these directions there is great scope for administrative talent, personal drive, and the inventive spirit. One small proviso might perhaps be stressed—viz., that it is essential that the layman who undertakes such work should be able to check up on the effect of what he is doing. For this he should be able to look for and recognize anopheles larvae in their natural breeding-places—not quite so simple a matter as sometimes made out, but one that nowadays could easily be learnt from a few hours spent with a collector or malaria officer.

Dr. Macdonald refers to the time when malaria was more severe in Malaya and affected industry more seriously

[7] *Clin. Sci.*, 1939, **4**, 167.
[8] *J. clin. Invest.*, 1941, **20**, 681.

than in any other country at an equal stage of development. Very largely by the efforts of planters and others engaged in industry this condition was brought to an end and Malaya became a model for other countries to follow. By the fortunes of war it has reverted to the state it was once in, though this can be remedied as it was before—but this time without the need to accumulate new experience in the methods of doing it. The public spirit, initiative, and enterprise which before the war led to these results may, we feel sure, be counted upon again in the rehabilitation of Malaya; and, with what experience has provided from the past, and the great advances in malaria control made during the war, there should be little doubt of the result.

ENVIRONMENTAL WARMTH

Maritime medicine has been much concerned with environmental conditions for nearly two centuries. For too long more attention was paid to machinery, equipment, and gadgets than to the well-being and efficiency of the men. It was the usual story of the struggle of the machine versus man, interests which have conflicted since long before 1789, when Gilbert Blane wrote: "We see, indeed, infinite pains taken to prevent cordage from rotting, and arms from rusting; but however precious these may be as the necessary resources of war, it will not be disputed that the lives of men are still more so; yet, though there is the additional inducement of humanity to watch over the health of men, I do not think that this, in general, is studied with a degree of attention equal to what is bestowed on some inanimate objects."

One important outcome of this war was a happy liaison between the Medical Research Council and the Admiralty—the Royal Naval Personnel Research Committee. The fruits of this union are even now inadequately recognized, but one of the most valuable is the recently published *Environmental Warmth and its Measurement*.[1] This memorandum, drawn up by Dr. T. Bedford primarily for the guidance of naval surgeons and such executives as the ventilation, construction, and gunnery officers, can be read profitably by all industrial hygienists. Two novel points are entailed in bringing up to date the science of environmental measurement: the use of special silvered kata-thermometers, and the introduction of a new scale which Bedford terms the "Corrected Effective Temperature" scale. This differs from the original measurement devised by Yaglou and Houghten[2] in that globe thermometer readings are substituted for dry-bulb records. The reason for this innovation is the frequent occurrence in ships of unidirectional sources of radiant heat, which would detract from the accuracy of ordinary effective temperature measurements.

The late Medical Director General of the Navy, Sir Sheldon Dudley, writes a preface to the booklet, and a supplement gives a number of charts and nomograms. The monograph is not entirely devoted to the technique of environmental study, for one section deals with the effects of raised temperature upon output and efficiency and upon the accident rate. There is a useful bibliography, and special mention should be made of the excellence of the paper and printing.

[1] M.R.C. War Mem. No. 17. London. H.M.S.O., 1946. Price 9d. (or including supplement, 2s. 3d.).
[2] *Trans. Amer. Soc. Heat. Vent. Engrs.*, 1923, **29**, 163, and 1924, **30**, 193.

TUBERCULOSIS IN TRINIDAD AND TOBAGO

In 1943 and 1944 Dr. W. Santon Gilmour was invited by the Colonial Office and the Council of the National Association for Prevention of Tuberculosis to carry out a survey of tuberculosis in the Colony of Trinidad and Tobago, the cost being shared as to £1,000 under the Colonial Development Act and £500 each from the Government of Trinidad and the N.A.P.T. Dr. Gilmour has now outlined in his report the tuberculosis problem in Trinidad and Tobago, placing it in its historical, racial, and economic setting.

The Crown Colony includes Trinidad, which is an island some 50 miles long by 37 wide, and Tobago, a narrow island 25 miles long, both situated a few miles off the coast of Venezuela. Descendants of African slaves introduced by the Spaniards, workers from India to meet demands of the sugar industry, with other descendants from Spanish and French settlers make up a varied total racial mixture of some half a million. Descendants of Indian settlers number about 200,000. The African predominates in the town, the Indian in the rural areas, the latter having the better housing: "From the point of view of tuberculosis there has not appeared to be any constantly direct relationship to nutrition other than malnutrition associated with poverty which still exists widely." The average temperature is not high for tropical areas, 69° to 88° F., but the average humidity is high, making the fatigue factor of much importance. The early tropical night also invites people indoors. Mortality rates from tuberculosis have been declining: 275 per 100,000 in 1896–1900 to 93 at the present time, which latter figure compares with 60 in the United Kingdom. Non-pulmonary tuberculosis is low in incidence. Very little milk is used, and most of it boiled before use. There is a much higher death rate in the towns compared with the country. Notifications about equal the deaths annually. Hospital and sanatorium accommodation is very inadequate. The tuberculin test was applied widely to give an indication of the infection rate and disclosed a high rate of infection in the towns and a considerably lower one in the country—and pulmonary disease was in the main found to be of the adult type. The Africans tend to present more acute than chronic disease; the Indians less disease, with tendency towards chronicity.

The main recommendations in the report concern the medical and nursing staff of the island; the provision of institutional accommodation and a few clinics. First, medical and nursing staff. These will consist of a whole-time chief tuberculosis officer and medical superintendent of a new institution, with the important suggestion that institutional work be unified in this one person undertaking clinic, preventive, and domiciliary work as is now done in the best schemes in the United Kingdom. Second, a sanatorium–hospital to be built up gradually to 268 beds, half for advanced cases. A site is already purchased and available near Port of Spain. The necessary additional medical and nursing staff are set out for the big sanatorium–hospital. Two new chief clinics are contemplated—one in Port of Spain, the other in San Fernando, with *x*-ray equipment. As regards diagnosis there has been a tuberculosis dispensary at Port of Spain working under the Trinidad and Tobago Association. It has been handicapped because (1) it is not officially recognized as the only place of reference of all cases of tuberculosis or suspected tuberculosis; (2) it is not the channel for admission of cases to the treatment wards of the existing hospital; (3) it has not the control of cases after discharge from hospital; (4) continued treatment after discharge from hospital and diagnosis have suffered from lack of equipment, especially *x* rays; (5) the tuberculosis officer is part-time and has no control of notifications, or of admissions to hospital.

The report makes many detailed recommendations for better and additional houses suitable to the special conditions of the islands. As a long-term policy better housing is required, and already the Government is dealing with the problem in some measure by its slum clearance. We are glad to note the Government proposes to enact legislation embodying the recommendations of the report.

UNITED STATES ARMY INSTITUTE OF PATHOLOGY

It was during the Civil War in 1862 that Surgeon General William A. Hammond founded the United States Army Institute of Pathology by ordering that pathological specimens be collected from hospitals and battlefields for the purpose of training Army surgeons. Seven months after its foundation the Institute had acquired thirteen hundred specimens illustrating wounds and the effects of projectiles. A year later a separate building had become necessary; and in 1887, the building in which it is now housed having been completed, the Institute's reports and specimens, together with the Surgeon General's Library (which to-day contains more than a million volumes), were established in Washington, D.C. Joseph Woodward started the photographic department in 1863. In 1942 its scope was greatly expanded under the designation of the Army Medical Illustration Service, and teams were sent to various theatres of war to take still and motion pictures in black-and-white and in colour, while some sixty general hospitals in the United States were equipped for clinical photography. The files now contain over a hundred thousand photographs in colour or monochrome and about a hundred thousand feet of cinematograph film. The Institute's present quarters have for long been inadequate, and it is hoped that they will soon be replaced by a new, enlarged Institute of Pathology and a thousand-bed hospital added, so that a centre for medical research and postgraduate training may be established for the study of the fundamental factors influencing disease. The staff consists of over thirty officers selected for their specialized knowledge, twenty Service men and women as clerical and technical assistants, and ninety-seven civilian employees. Information on any disease can be made available within a few minutes by means of sorting machines. Four departments have been formed: the Central Laboratory of Pathology, the American Registry of Pathology, the Army Medical Illustration Service, and the Army Medical Museum. The Director of the Institute is a Colonel in the Medical Corps of the Regular Army.

In accordance with the Federal Government's policy of sharing cultural and scientific matters with other nations the Institute aims at the dissemination throughout the world of knowledge of the pathology of disease. Its consultative service is available to foreign pathologists and medical graduates interested in special fields of pathology, as well as to the pathologists of the United States Army and American civilian institutions. The organization also conducts research into the pathology of disease and provides instruction in advanced pathology to officers of the Army Medical Department and others.

During the recent war Army hospitals in the United States and overseas sent in a wide variety of specimens, and it is expected that many more will be received as hospitals close down. Some of these specimens will be retained at the Institute, but it is intended that the surplus should be distributed to the war-damaged laboratories of medical schools throughout the world. Authorized foreign representatives and accredited scientists are invited to avail themselves of this valuable service. Further information is obtainable from: The Director, Army Institute of Pathology, 7th Street and Independence Avenue, S.W., Washington, D.C., U.S.A.

INSECTS, MITES, AND ASTHMA

Allergic reactions to insect bites and stings are quite common and cause urticaria or angioneurotic oedema most frequently, asthma occasionally, and collapse and death rarely. It is less well-known that allergic reactions, especially rhinitis and asthma, may follow inhalation of insect emanations. The may-fly, sand-fly, house-fly, mushroom-fly, moths, and butterflies have all been incriminated.[1] Specificity has been proved, usually by conjunctival tests, passive transfer tests, and negative controls. Some of the case reports are of individuals exposed under special circumstances, but others are reports from parts of the world where the flies were present in myriads and the air was laden with the dust from the disintegration of their bodies. Such a report has recently been made by Ordtmann,[2] who describes asthma due to sewage flies *(Psychoda)* affecting workers at a South African sewage farm. The flies were so numerous that shady parts of buildings and the interiors of homes near the filters were at times blackened by them. Thirteen employees gave a history consistent with their asthma being due to sensitivity to the sewage fly, six showed positive skin tests to extracts of the fly, and two of the five tested positive transfer tests; negative skin tests were obtained in controls.

The association of mites and asthma has in recent years aroused considerable interest, and was the subject of a leading article in this *Journal*.[3] Attention was drawn to the findings of workers in Ceylon,[4 5] that mites were present in the sputum of certain cases of tropical eosinophilia, which was the subject of a recent annotation.[6] This condition is also referred to as "eosinophilic bronchitis," "eosinophil lung," and "pseudo-tuberculosis." It appears particularly in India and Ceylon, and is characterized by asthma or bronchitis with an exceptionally high eosinophil count, and at times a particular *x*-ray appearance of the lungs; it is cured by arsenic. A second article by Carter and D'Abrera[7] describes their findings in twenty-five such cases in Ceylon. Mites were detected in the sputum in every case, none had an eosinophil count of less than 3,000 per c.mm., and all except one responded to arsenic. The mites seem to live in the bronchial tree. It is suggested that they are responsible for the asthma and eosinophilia, and that the arsenic effects a cure by their destruction. As the authors point out, further observations are necessary. It would be of interest to know whether mites occur in the sputum of apparently healthy people in Ceylon, particularly among those especially at risk.

There are both sewage flies and mites in this country. The former are localized to sewage plants but may be present in very large numbers. The possibility of individuals who attend to the filter plants being affected might be considered. That mites may cause asthma in this country appears clinically to be very unlikely, but more exact information from the entomologists of the conditions under which people are liable to be at risk is required.

We regret to announce the sudden death of Mr. A. Tudor Edwards, whose pioneer work in thoracic surgery won him international fame.

[1] *Bronchial Asthma*. L. Unger. Illinois. 1945, p. 185.
[2] *S. Afr. med. J.*, 1946, **20**, 32.
[3] *British Medical Journal*, 1945, **1**, 18.
[4] *Indian med. Gaz.*, 1944, **79**, 163.
[5] *British Medical Journal*, 1945, **1**, 1.
[6] Ibid., 1946, **1**, 884.
[7] *Trans. roy. Soc. trop. Med. Hyg.*, 1946, **29**, 373.

Reports of Societies

CONFERENCE ON AGEING

On July 16 at the Imperial College of Science, London, a conference was held by the British Branch of the Club for Research on Ageing. The delegates of the European Branches of the Club and some other guests interested in the subject were also present. Lord Nuffield was elected Hon. President and Sir Francis Fraser chairman of the conference.

Sir FRANCIS FRASER, having introduced the delegates from other countries, said that clinical research on old age was the most difficult of all fields of research as there were always so many uncontrolled factors to consider. Quick results were not to be expected. Pathological conditions were generally present in addition to old age. Clinical research on physiological ageing was practically impossible and it was better for clinicians to concentrate on studying primarily the pathological conditions.

Prof. F. A. E. CREW gave an account of recent work in Scotland on the sociological problems of an ageing population. The current figures for births, deaths, and marriages appeared satisfactory on the surface, but when looked into more carefully the present population trend showed a most disquieting increase in the proportion over 65. Since industrial capacity diminished after 35 there was a danger of the old becoming a burden on the young. He urged the need for closer collaboration between clinical investigators and those working on population research. The real problem of gerontology was "not how to give years to life, but life to years."

Dr. M. CRITCHLEY urged the need for further research on the nervous system in the study of normal ageing as well as the associated pathological conditions.

Dr. V. KORENCHEVSKY expressed the aim of gerontology as not merely to achieve a longer life but a stronger one. Since ageing started at a very early age they must include the study of the whole life span and even the development of the foetus. Attempts at rejuvenation by such methods as Voronoff's grafts, hormone treatment, or Bogomoletz's serum were unsatisfactory since they achieved only a temporary stimulation. The aim must be to discover and remove the causes of premature ageing and not merely to stimulate degenerated tissues.

Prof. F. C. BARTLETT considered that the effects of ageing on psychological performance could be compared with the effects of other factors such as extremes of heat, humidity, and noise. Each of these produced an increased liability to fatigue, which could be measured in a number of ways. New methods developed for the study of skill and fatigue in air pilots during the war might be applicable.

Reliable Information Sought

In the discussion which followed Prof. G. R. CAMERON emphasized the need for quantitative research on the effects of ageing on the blood vessels of the brain; there was scope for the employment of many new techniques on this problem. Lord Nuffield said he could not understand how ageing could begin in early childhood, since the athletic performance of a child went on improving up to the age of 15. Dr. Korenchevsky and Dr. Hammond pointed out in reply that different organs developed at different ages: brain and bone had priority at an early age and muscle developed only later. Prof. M. J. STEWART wanted research to be carried out on changes in the blood in old age. Many old people died of pneumonia because their blood failed to respond as vigorously as that of young people to the toxins of the pneumococcus. Dr. D. RICHTER urged the need for more accurate statistics of the causation of death. The present figures were unreliable as permission for a necropsy was often refused. The public must be educated into a realization of the importance and value of post-mortem examinations. Dr. L. FAIRFIELD deplored the way in which the chronic sick and aged were despised by the teaching hospitals and thrust on the public authorities. Medical science had relieved many of the worst miseries of old age, but senile dementia was a social problem of increasing urgency. Was it right that healthy young women, who should be bringing up children in their own homes, were engaged in washing the dirty linen of wards full of wet and dirty senile dements?

Dr. PURCHASE, as a coroner, agreed as to the unreliability of the present statistics and said he could provide reliable figures for some two thousand cases a year on which necropsies were carried out. Prof. Crew said he was anxious to close with Dr. Purchase's offer. Dr. Fairfield considered that the conspiracy among general practitioners to avoid putting cancer on death certificates might cause significant error in the figures.

The morning session was closed by the passing of five resolutions expressing the requirements for the further advance of gerontology. These included international co-operation between those interested in the subject, establishment of permanent institutes for research on ageing, and the provision of ample funds necessary to secure these facilities.

Hormones and Ageing

At the afternoon session Dr. Williams read a paper for Prof. E. Dodds on the significance of androgen and oestrogen excretion in the urine in relation to ageing. The tendency to cancer of the prostate was considerably affected by the sex hormone balance as shown by experiments on castration and by the effects of administering stilboestrol in the male. Prof. Crew pointed out that the male infant had a much poorer chance of survival than the female. A male infant with bronchopneumonia was thus suffering from two conditions: (*a*) bronchopneumonia and (*b*) maleness. Could we use sex hormones to transform temporarily a male infant into a female to get over this disadvantage? Dr. Hammond, describing recent work at Cambridge, said that chronological age must be differentiated from physiological age. The physiological ageing of the foetus could be varied experimentally by controlling the size of the litter and the nutrition of the mother. Similar factors might operate in the return to an infantile condition in old age.

Prof. J. B. DUGUID put forward a new theory of the thickening of the arteries in atherosclerosis. We had been misled by the teachings of Virchow. The thickening did not come from within the artery walls: it was due to the organization of successive layers of fibrin deposited on the intima. In his view the primary cause of the disease was in the blood rather than in the vessels. Prof. Cameron asked how this could account for lipoids in atheromatous plaques. If the arterial narrowing was due to encrustation with fibrin from without, why did not the veins get narrowed in the same way? Prof. Duguid felt the relation of lipoid changes to atheroma was not fully understood. The veins did not get narrowed, because when they thrombosed the whole vein became blocked, while in an artery the vessel was cleared by the rapid flow of the blood.

Dr. Korenchevsky gave an account of experiments on the artificial premature "climacteric" and its effects on ageing in female rats. Ovariectomy hastened ageing of rats. The combination of androgenic, oestrogenic, and thyroid hormones produced an apparent "anti-ageing" effect as judged by the organ weights and histological appearances, but this might be a temporary stimulation of ageing organs.

Effect of Vitamins

Dr. W. STEPHENSON read a paper for Dr. P. E. Vernon in which it was concluded that large amounts of vitamins exerted little effect on psychological ageing when the diet was adequate in these compounds. Dr. Stephenson described some work of his own in which an increase of vitamins in a diet previously deficient in them had improved the mental capacity of senile subjects. Prof. Bartlett criticized the use of psychometric tests in these experiments: the performance of such tests was not characteristic of senile subjects; the things that they normally enjoy doing should be measured.

Dr. RICHTER described an investigation of the biochemical changes. Mental and physical deterioration in ageing were processes that could be differentiated by their biochemical accompaniments; the changes associated with senile dementia were different again. Senility was a series of pathological processes which needed to be more clearly defined. Much public money was now being spent in providing homes for old people: there was an urgent need that more should be spent on preventive measures, which meant research.

Dr. J. H. SMYLY gave an account of his methods for assessing physical fitness in old men, including exercise-tolerance tests

as measured by pulse rate and oxygen consumption. The usual methods might be dangerous for old people.

Prof. Crew in summing up said that the proportion of old people in the population was increasing, and gerontology was therefore of increasing social importance. He recommended the formation of a permanent International Congress Committee to organize international gerontological congresses.

Nova et Vetera

SIR DOMINIC CORRIGAN

Nos. 1 and 2 of Volume VIII of the *Dublin Historical Record* contain an interesting memoir by Dr. Eileen Dixon of Sir Dominic Corrigan, who described the "famine fever" of 1847, wrote upon diseases of the heart, and in 1832 published an original description of insufficiency of the aortic valve. His name lives in the characteristic "water-hammer pulse" of aortic regurgitation.

Dominic John Corrigan was born in Dublin in 1802, one of six children. He went to school at the Lay College of Maynooth, a separate institution from the Ecclesiastical College, though the boys were not kept apart too rigidly. His classical grounding stood him in good stead when later he attended medical lectures in Latin at Sir Patrick Dun's Hospital. After qualification he became known as a sound and popular lecturer in the medical schools. His practice was enormous and for many years very lucrative. After an early failure, due to party and religious spirit, he was elected a Fellow of the Royal College of Physicians of Ireland in 1859 and soon afterwards began a term of five years in succession as its president. He was for a time Member of Parliament. Honours flowed in. For the first time in history a Catholic was appointed Physician-in-Ordinary in Ireland to Queen Victoria, and two years later, in 1849, Trinity College conferred an honorary degree of M.D. upon him. He was a member of the General Medical Council from the time of its foundation in 1857 until his death in 1880. But perhaps, as Dr. Eileen Dixon says, the distinction that he himself may have appreciated most was his election as Corresponding Member of the Paris Academy of Medicine in 1874, an honour only once previously bestowed on an Irishman, Richard Carmichael. For four-fifths of his working years Dominic Corrigan was one of Dublin's famous Merrion Square doctors. He was created a baronet in 1866.

MEDICAL ASSURANCE

The annual general meeting of the Medical Sickness, Annuity and Life Assurance Society, Ltd., was held for the first time at its new offices, 7, Cavendish Square, on July 16, Mr. R. J. MCNEILL LOVE presiding.

In his address, Mr. McNeill Love made some reference to the National Health Service Bill. "We welcome any steps which might improve the service which our profession gives to the community, but we are not convinced that the suggested measure will secure the best results. There is no doubt that very many doctors resent the possible limitation and control of their work, and they are uneasy about the future. This state of mind is not improved by the realization that the eventual aim of the Government is to establish a full-time salaried service."

Turning to the accounts for the year, the Chairman said that in the Life Assurance Fund new business at £270,048 showed an increase of £45,208 on 1944, and the total annual premium income was now £175,431. Claims by death and maturity were over £80,000, which was a very large increase on previous figures. In the Sickness Fund the premium income was now £135,366, and claims paid during 1945 were £72,265—actually less than in 1944, although the amount at risk was substantially higher. The funds of the Society had increased by £200,000, and now amounted to £3,226,000.

Sir Cecil Wakeley, who was congratulated on his recent honour, and Mr. Bertram Sutton were re-elected directors. The meeting agreed to an interim bonus on with-profit policies for permanent sickness and accident insurance and life assurance terminating at the stated age or by death in 1946, the bonus on life assurance to include provision for each of the years since the valuation in 1936.

Imperial Chemical Industries has leased the house and laboratories at The Frythe, Welwyn, Herts, for conducting long-term research into such subjects as the antibiotic products of moulds, kinetics of continuous chemical reactions, and industrial design and toxicology. Work has already begun, but this accommodation will be temporary and will be used until a site near St. Albans can be developed.

Correspondence

Health Service Bill

SIR,—The National Health Service Bill has now been discussed from every conceivable standpoint, and there can be few medical men who are not well versed in its provisions. Professional opinion seems to be divided into four main groups: (1) Those who for political reasons strongly support the Bill. (2) Those who, having little or no experience of general practice and lacking economic security, support the Bill for its very obvious advantages for themselves. (3) Those who have been compelled for some years to submit themselves to the rigours of general practice and who, heartily disliking many of the provisions of the Bill, feel that the profession should accept it in the same spirit as the tired doctor accepts a night call. (4) Those who object to the Bill on a basis of principle regardless of its advantages or disadvantages to themselves. The fourth group has not been very conspicuous—probably because it is very much easier to know that a thing smells bad than it is to give concise reasons why it does so.

Since the Bill is called the National Health Service Bill, it is presumably to be judged by the degree of service which it provides for the general public. The advantages or disadvantages which accrue to the consultant or the general practitioner are therefore of secondary importance.

Regarded in this light two important facts emerge: (1) No adequate service can be given unless the amenities in the shape of hospital beds and staffs are forthcoming. (2) The medical profession has two distinct services which it renders to the general public: (*a*) a personal service rendered by the general practitioner; (*b*) an expert treatment-of-disease service rendered by the hospital and the consultant.

The hospitals, which started as institutions for the treatment of the sick poor, have developed into institutions for the specialist treatment of disease. Mr. Jones in the medical practitioner's surgery becomes No. 14 in the hospital ward. The specialist is not a specialist in human nature but a specialist in some specific group of diseases. Where the medical practitioner treats the whole person the hospital and the consultant treat his disordered function.

Now, the State through its Government deals not with individuals as such but with their functions. The various shades of political opinion vary from a right wing which, while legislating for man's functions, recognizes that he has an individuality which should be given expression, to a left wing which regards man as a functioning citizen and nothing else. When, therefore, the State takes an active interest in the health of the people it can legislate for man's disordered functions, but it cannot and must not interfere with his individuality. This fact has very important implications in relation to the Bill. It means that, taking a long view, the general public will get an ever-improving service from the consultant and the hospital but a continually deteriorating service from the general practitioner. This fact has nothing whatever to do with the willingness of the professional man to work the Bill or with his efficiency and skill.

It seems likely that the medical profession will be split into two sections on this point. The long-sighted consultant will see that he will have an ever-increasing opportunity to do good work, while the equally long-sighted general practitioner will see that purely clerical duties will absorb more and more of his time. There is much in the hospital and consultant services which will benefit from State interference. There is nothing in the general practitioner service which cannot be improved without the State interfering.—I am, etc.,

Bath. E. R. MATTHEWS.

SIR,—Every doctor will agree with the first sentence of Dr. J. McIntosh Rattray's letter (Aug. 17, p. 238), but with his interpretation of Dr. Dain's address, as reflected by his subsequent remarks, there will not be such unanimity. While we all admit the difficulty of getting every single doctor to make up his mind, that is just what Dr. Dain told us to do. "Where do we stand?" he asked. "This decision has to be made, not by the medical profession as a body or acting through the

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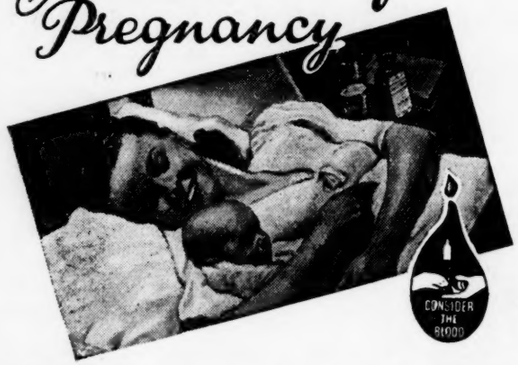

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Council, but by each individual member of the profession . . . there comes a moment at which the doctors themselves must be asked what action they intend to take. The Council will act on their instructions. . . ."

Our course has not been set for us. The future policy is to be decided by each one of us by himself in his or her own home. As a profession we are accustomed to taking decisions of some magnitude every day of our lives, and I agree that we should not sit on the fence any longer. The sooner the plebiscite is taken the better. Until the result is known no action can be taken, and the present battle of words will continue. It ill becomes one who loves freedom to call his colleagues traitors. There is to be no conscription into the Service, and those that do not like it can stay out, and not even Mr. Bevan will call them traitors. Why therefore apply the epithet to those who may wish to join the new Service? And who knows?—they may even be in the majority.

There is no danger of the medical profession becoming extinct. The need for our art grows yearly, just as the need for a strong and united B.M.A. grows more vital as the weeks go by. There has been too much verbal bickering, and it does us no credit with either the public or the Minister. Once the result of the plebiscite is known let us all unite behind the Council in following a common line, and let there be no more talk of traitors nor of dishonourable conduct. The debate has gone on long enough. The time for a vote has come. Whichever way it goes let us hope that it will be decisive.—I am, etc.,

Skewen. TREVOR DAVIES.

SIR,—The Minister of Health, a paid public servant, demands to have supreme power conferred on himself and his successors, power which sets aside the jurisdiction of the High Court of Justice—this and nothing less will satisfy his craving for authority. So far, by political acumen, astute handling, with an arrogance seldom exceeded, and backed by a heavy "yes-men" vote a totalitarian measure has been forced through the House of Commons on the highly debatable pretext that it is the wish of the people.

In actuality the informed public are antagonistic to this Bill; the as yet uninformed will thank the medical profession if it insists on a much more detailed consideration of the implications of this extremely complex measure before signing away its liberties, together with those of the people, and abjectly "bending the knee" to the dictation of any one man. To sign a service contract must mean complete failure to recognize the "iron hand in the velvet glove," but at the same time it means blind and trusting acceptance by the signatory of what is acknowledged in every quarter to be merely a "skeleton Bill"—but nevertheless when fully garbed a political weapon of quite unlimited potentialities.

A brief résumé of the "conditioning process" to which the medical profession has been and still is being subjected may help to throw into relief political ethics. The blending of dulcet tones to attract the young by spurious promises of initially attractive salaries, the more-than-market value offered for practices to induce the older men to part with their freedom: these ill conceal the ulterior motives behind this seeming generosity. Through State seizure of hospitals (plus their endowments) consultants either sign or starve; by abolition of the right to buy or sell the general practitioners likewise have duress applied; thereafter each will be directed or controlled.

Fate has placed on the shoulders of the medical profession a very heavy burden of responsibility to the people of this land, for on the decision to steadfastly decline to be a party to bribery and corruption is poised the fate of a nation—here surely is the chance to strike a blow to free an "England in Prison." Count well the cost before bartering your soul, your independence, and your self-respect for specious promises of materialistic gain, for which in any case there are no honest guarantees but only memories of broken pledges (reduced capitations, raised insurable income limits, broken E.M.S. contracts).

After a calm survey of such a record can you trust the politician? Would it not be wiser to use your own common sense in conjunction with your conscience before signing?

This Bill as it stands is totalitarianism naked and unashamed. If we have moral principles and do not exercise them fearlessly this "skeleton" will see to it that the opportunity for so doing will never again arise: we shall have reaped where we have sown. The plebiscite will at least determine whether in the main we are morally sound or rotten with corruption and unworthy of the responsibilities we have to carry. It surely is not so. In short, we are being tempted to barter our freedom and our honour for economic baits.—I am, etc.,

St. Annes-on-Sea. G. H. URQUHART.

SIR,—I would like to congratulate Dr. C. G. Jones (Aug. 17, p. 239), who has, I feel quite sure, expressed the views of a large section of our profession. The report of the Annual Representative Meeting made very sorry reading: I refer particularly to the speech by Dr. H. Guy Dain, the Chairman of Council, speaking on behalf of the Council. It is a fundamental law of nature that there shall be opposition to every growing, developing thing. It is more than regrettable that the opposition to the National Health Service Bill has come from the leaders of our Association. The B.M.A. has already said and done quite enough to be made the laughing-stock of future generations of doctors, who will be, as Dr. Jones rightly states, doctors because of their vocation and not merely business men being doctors.

Week by week we are urged to unite to "fight the Bill," to "fight the Minister," to "bring the Government to its knees," and Dr. Dain concluded his speech by saying that "we are in the strongest possible position for ensuring that what we think is best for the public will be carried out." What rubbish! There can be no such unity. An appreciable number of doctors see in this Bill the way to better health for the people of the British nation, and no amount of claptrap will deter them from working in the new Service to the best of their ability. It would appear that some members of our profession require a reminder that we are in fact living in a democratic country, which implies in our case government by an elected majority in the House of Commons. The present Government, elected by constitutional methods in 1945, has decided that there shall be a National Health Service and has laid down certain basic principles upon which the Service shall be built. Let there be no mistake—the new Bill will be on the statute book in the near future. With the full co-operation of the profession the new Service could be second to none. Without that co-operation it might well be a mediocre apology for a Service of which nobody could be proud. It does not require a great deal of thought to see where our duty lies.—I am, etc.,

Scarborough. PETER WADDINGTON.

SIR,—Judging from most of the correspondence and articles in the *Journal* it would appear that some members of the profession at least do not approve of the proposed National Health Service. This is of course a pity. The main complaints appear to be directed against the ministerial powers—his power of direction—and the fact that we will become a salaried service.

The direction of doctors appears to me to be an unfortunate but very necessary evil. It will be impossible in the future, as in the past, to spread the limited number of doctors evenly throughout the country without some sort of planning. Without control there would inevitably be areas of relative congestion and sparsity. Surely we can see that this is so and therefore agree that some measure of direction is required. Is it not the *method* of direction rather than the *principle* of being directed into which we should inquire? Providing the "direction" is reasonably carried out, with due consideration being given to the preference of doctors for the type of work and areas in which they wish to work, nothing but good can result. This will I believe prove to be the case.

The proposed National Health Service is a magnification and improvement on an already well-tried and successful system—the Panel. No one can deny that this system is not a good one, and that should there be any failure in the ability of doctors to work an extension of it (i.e., the National Health Service) perhaps the fault lies not in the system but in those who have to work it.

Ministerial powers can of course become dangerous. Again, rather than strive to fight the principle whether or not he should have these powers should we not grant that he must have them but see that the powers are not carried beyond those given to him by Parliament, which, under an excellent democratic system, represents the wishes of us all?—I am, etc.,

London, E.2. ALAN MALONE.

Principle 2 and the Health Service

SIR,—Two distinct issues seem to be involved in the choice of a right medical policy at the present time. The first involves the question of the manner in which the best possible Health Service can be provided within the terms of the Health Bill having regard to the number of available doctors, the number of patients to be provided for, and the amount of money to be spent upon the service, and so on. This first issue has been under debate for years. The B.M.A. has tried to persuade both doctors and the public to set up a complete service based upon existing and established services. Any chance of success these proposals may have had was destroyed partly by the absence of enthusiasm among doctors for any radical change and partly by the results of the last election.

It is now clear that the community has decided the general form of the Health Service that it desires to have. Hence only one choice lies before every doctor: to accept or to refuse service under the Act in 1948. Before he can finally make this choice every doctor must determine his attitude towards accepting service in *any* State-conducted Service. When he has done that he must ask himself whether the actual conditions of work and remuneration are likely to be such that he is willing to accept service. If his answer to either of these questions is in the negative he will know where he stands. But even if he is prepared to accept service in a State-sponsored Health Service he will still need to be satisfied about the conditions of work that will be offered to him in the Service.

This brings me to the second issue. The conditions of work under the new Health Bill are only partly determined by the Bill itself. Many of them will be determined by the Regulations that are yet to be made. It seems to me to be most impolitic to attempt to precipitate a struggle about a short-term issue such as the amount of the present N.H.I. capitation fee. What we ought to be discussing are the long-term issues—I mean remuneration and conditions of service—so far as they will be settled by Regulation. I see no reason why such a discussion cannot be "without prejudice" on both sides. One thing at least is certain: many doctors will not be able to decide whether they are willing or unwilling to enter the new Service until they know a great deal more about the proposed conditions under which they will be asked to work. As soon as those conditions have been made clear we shall be able to make plans for our future with some degree of certainty.

When the Act is in operation we may find in fact and in experience that it infringes Principle 2 in some important respect. If that happens the time will have arrived for a real trial of strength. If the above plan of action should prove to be generally acceptable to the profession we should not place ourselves in the invidious position of appearing to be seeking to force the political views of a majority of doctors against the expressed will of the community. If only a tithe of the warnings given by some doctors should prove to be justified it will not be long after Jan., 1948, before we have strong grounds and wide popular support for a demand for changes in the Regulations or even in the Act itself.

In my opinion Principle 2 is the only solid ground on which opposition to the new Service can be rightly undertaken, and that only *after* the Act has been given a trial.—I am, etc.,

Worcester HOWARD E. COLLIER.

*** Principle 2 is as follows: "The medical profession should remain free to exercise the art and science of medicine according to its traditions, standards, and knowledge, the individual doctor retaining full responsibility for the care of the patient, freedom of judgment, action, speech, and publication, without interference in his professional work."—ED., *B.M.J.*

Direction in National Health Service

SIR,—I cannot see how a National Health Service can be run efficiently without a certain amount of direction. After all, do we not have a degree of negative direction at present? When a man qualifies in the ordinary way he applies for a hospital appointment or an assistantship. Obviously he must apply where there is a vacancy, and if that is just where he wants to go then he is lucky. It appears to me that under the N.H.S. these conditions would be similar.

There are at present certain districts in large towns which are insufficiently supplied by medical practitioners. Conditions in these areas are not attractive, and therefore at present are shunned, but under the N.H.S. they could be made more attractive by carrying a higher rate of pay. You can always get a job done if you pay highly enough, and this can be done under a Service, whereas it is impossible under present conditions of practice.—I am, etc.,

Portishead. DOUGLAS W. BRUCE.

Negotiators and Legal Advice

SIR,—I should like very strongly to support the letter of Dr. Geoffrey Dudley (Aug. 17, p. 240). It has always appeared to me that the very best legal counsel should be employed in all negotiations with the Government, and I have always been surprised at the apathy of our profession in this matter. I once raised the question at a B.M.A. meeting at which members of the Central Executive were present, but there was a complete absence of any acknowledgment that the idea was sound.—I am, etc.,

Richmond. R. K. ROBERTSON.

SIR,—Surgeons and well-known consultants will float easily above the murky waters which will engulf the free profession. It is high time that a strong Committee of Finance controlled dealings with the Socialistic Government, which daily is becoming more totalitarian than ever. An experienced lawyer should hold the chair. Salaries, capitation fees, retiring pensions, and a definite arrangement for the distribution of the promised £66,000,000—the solatium for the life work of thousands of busy doctors who on a wave of the hand are to renounce all dealing in their property—all need deciding at an early date. Once on the statute book repealing or amending is a troublesome matter. The profession owes a debt of gratitude to Mr. H. U. Willink.—I am, etc.,

Crantock. A. L. MARTYN.

Amoebic Dysentery

SIR,—I have recently been able to read the letters and articles which have appeared in the *Journal* discussing at some length the condition of amoebic dysentery. While most of these pointed out that this chronic condition could cause manifoldly different symptoms only one such symptom appears to have been mentioned—i.e., that of diarrhoea.

It became apparent to all medical officers working in the Far East that many common symptoms of this condition have as yet not found their way into the textbooks. The hazard to the general well-being of the population of this country in relation to the large number of men and women returning from the Far East has been well recognized, and in this connexion it is interesting to note that at Service hospitals to which men are medically repatriated for reasons other than amoebiasis a routine tropical overhaul reveals a large number of apparently symptomless patients who are infected with amoebic cysts. An even larger number must by now have taken their place among the civilian population.

The general practitioner is bound to be confronted with such patients, and unless he is aware of at least a few of the more common symptoms with which such patients present themselves proper investigation may be dangerously delayed.

(1) Diarrhoea is the commonest symptom, and even in this country it may be of an acute nature, although more usually the patient complains of persistent loose bowel actions with or without blood and mucus. Such conditions are seldom missed.

(2) Pain in the abdomen. Acute abdominal pain in any patient who has spent some time in the East should be regarded as an "amoebic possibility": often these patients even without fever have a liver or caecal infection with *Entamoeba histolytica*. Persistent dull abdominal pain with apparent good general health is probably one of the more usual manifestations of this disease that the general practitioner sees in this country. It resembles closely the symptomatology of peptic ulceration, and is accompanied by a large excess of large-bowel flatulence which is most embarrassing to the unfortunate sufferer. Chronic caecal pain may again be a pitfall in diagnosis; and in both these cases widespread pin-point bowel mucosal lesions discharging amoebic cysts should be excluded.

(3) Haemorrhoids. The number of people who report to their doctor with piles is enormous, but in any fresh cases the doctor may see in men or women returning from the Far East it is as well to exclude the possibility of amoebic bowel ulceration as the primary cause of the condition.

(4) Malaise and irritability. The general practitioner is overwhelmed by patients complaining of general debility; but clinically it is of interest to note that the stools of patients giving past history of overseas service, often a history of very vague abdominal discomfort, and complaining bitterly of continued irritability for which they cannot account will often demonstrate amoebic cysts. The chronic civilian sufferer from amoebiasis in the East always states he knows when he is due for a relapse by the onset of this odd irritability.

This list is by no manner of means complete or comprehensive, but it may afford the already overworked practitioner a basis on which to work.

This letter was prompted by the fact that I have recently seen in this country two cases: one "operated on for piles which had persisted" who showed large ulcer craters with actively motile *E. histolyticae* three inches above the pile-bearing area; and the other investigated for flatulent dyspepsia and discharged with negative results who had large numbers of amoebic cysts in his stools. Appropriate treatment cleared both these cases.

I feel sure there must be many more such patients.—I am, etc.,

London, N.12. M. L. MASON.

Transurethral Prostatectomy

SIR,—I do not wish to join in the present battle of words taking place in your columns on the relative merits of the transurethral versus the open prostatectomies, but I must refute the inaccurate figures and erroneous conclusions drawn therefrom contained in Dr. H. T. Cox's letter (Aug. 17, p. 241). If Dr. Cox will carefully re-read my paper (*Proc. roy. Soc. Med.*) to which he refers he will find the 219 cases of resection reported therein did not represent my total but merely a group in a consecutive series of 357 cases dealt with by various methods. I have been performing transurethral resection of the prostate since Sept., 1931 (*Lancet*, **1**, 121; 1932, etc.), and have carried out more than 1,600 such operations. I think by now I can claim to appreciate that the procedure has very definite contra-indications quite evidently not realized by some of the recently converted ultra-enthusiasts.—I am, etc.,

London, W.1. TERENCE MILLIN.

The Catheter and the Prostate

SIR,—Mr. Wilson Hey (Aug. 17, p. 241) reiterates his well-known statement that operation must be delayed if a catheter has been passed for prostatic obstruction. In the last paragraph of his letter he condemns suprapubic cystotomy as a dangerous procedure. It would be of the greatest help to both general practitioners and surgeons if he would state categorically what should be done for a patient when acute obstruction supervenes on chronic under conditions when transfer to hospital or nursing home involves considerable delay. This is a common experience for many. He should also make it clear how such patients are to be treated after their initial obstruction has been (perforce) relieved by catheter pending operation.

Mr. Wilson Hey may have made these points clear in previous correspondence, but I have been unable to find it, and apparently many others are in the same difficulty.—I am, etc.,

Belfast. C. J. A. WOODSIDE.

Reiter's Disease

SIR,—I beg to draw attention to the fact that so-called Reiter's disease, as described by Flight-Lieut. W. P. U. Jackson (Aug. 10, p. 197) and Dr. F. Wrigley (p. 199), is almost certainly dysenteric polyarthritis, as it is well known to most physicians who served in dysenteric zones in the Hitlerian war. A history of dysentery, sometimes fleeting, with a latent interval of about ten days could be established in nearly all the cases I saw (about a dozen), and in no instance was it the first attack. Paulett and I succeeded in reproducing the sterile conjunctivitis by instilling a drop of Flexner vaccine into the conjunctival sac in three of these cases, the flare taking place after an interval of five to eight days. It was impossible to employ autogenous vaccine because stool cultures were always negative when such patients were first seen, and it was therefore a matter of chance whether we used the right organism or not. Conjunctivitis did not follow use of the vaccine in normal controls, nor in patients with gonococcal polyarthritis or with streptococcal polyarthritis (rheumatic fever). Vaccine dropped into the urethral orifice in several cases failed to cause urethritis, however. Vaccine dropped into the conjunctival sac of cases of dysentery without polyarthritis yielded essentially negative results. This work was not published owing to loss of the records in Italy (in the usual way).

The hall-marks of the various organisms responsible for different forms of what is thought to be allergic polyarthritis are interesting: conjunctivitis and urethritis (sterile) point to the dysenteric group; tenosynovitis to the gonococcus and tubercle bacillus; carditis and salicylate response to the streptococcus. The list is by no means complete, and the explanation remains unknown.—I am, etc.,

London, W.1. PAUL WOOD.

SIR,—You published in the *Journal* of Aug. 10 two interesting short papers; one by Flight-Lieut. W. P. U. Jackson, the other by Dr. F. Wrigley, on Reiter's disease. I entirely agree with their view that this syndrome should be more widely recognized, both in order to promote further research into its aetiology and to remove an unjust stigma of venereal disease from certain cases. At a discussion on acute arthritis in adults, held by the Physical Medical Section of the Royal Society of Medicine in April, I drew attention to this condition, giving brief notes on six cases seen in the Middle East and suggesting that some of the cases discussed at the same section in 1942 by Lieut.-Col. King and myself as being probably of gonococcal origin might more rightly have been classified in this group. By 1944 Lever and Crawford were able to find 45 such cases in the literature.

The order of appearance and time lapse between the appearance of the symptom triad vary a great deal, but I think it unusual for the urethritis to appear thirteen days after the arthritis as in Case 1 quoted by Jackson, and again the presence of a true keratitis described in Case 3 is, I believe, uncommon. The most likely aetiological agent appears to be a virus of the Waelsch type, which is probably also responsible for "swimming bath" conjunctivitis and "inclusion" cervicitis (Van Rooyen). Research into the causative agent in this syndrome is urgently required, and valuable information may be obtained by careful recording and follow-up of suspected cases, together with examination of urethral scrapings for inclusion bodies and the carrying out of the Frei antigenic reaction. This was unfortunately impossible in my cases, but under peacetime conditions it should be less difficult.—I am, etc.,

Bath. GEORGE D. KERSLEY.

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SIR,—After reading the article on Reiter's disease by Flight-Lieut. W. P. U. Jackson (Aug. 10, p. 197), one is reminded of the fact that the triad of symptoms described is a well-known complication of bacillary dysentery. Although the author states that "diarrhoea, sometimes severe and bloody, may be present at the onset," no mention is made of bacillary dysentery as a possible aetiological factor in his cases. Complications in bacillary dysentery may occur during the attack, but the usual story is that they occur two or more weeks later, and unless a history of diarrhoea is inquired for the patient will rarely volunteer the information. The author used sulphathiazole in treatment, and it is of interest to note that following the introduction of sulphaguanidine in the treatment of bacillary dysentery the incidence of complications became negligible.—I am, etc.,

St. Helens. JAMES KAY.

Problem of Haemophilia

SIR,—I was much interested in the annotation on the problem of haemophilia (July 6, p. 18) and the treatment of this condition with plasma. In discussing the causation and treatment of this condition (*Clin. J.*, 1936, Dec.), I referred to Howell and Cekada's researches which indicated that the platelets were unduly stable and, therefore, thrombokinase was liberated so slowly that clotting was unduly delayed. I also pointed out that bleeding occurred without trauma.

Since 1942 I have treated seven cases of true haemophilia and two cases of multiple hereditary telangiectasis with plasma applied topically and by mouth—seemingly with good effect. The usual method has been to give from one to two measured ounces of plasma three times a day and also regularly as a prophylactic measure. This seems to have been very helpful, and where the full dose of plasma has been continued the patient has been practically free from bleeding.

For some unknown reason the improvement in the coagulation time in the blood frequently does not coincide with the marked clinical improvement which ensues. It is important to note, however, that there are factors in haemophilia which are not understood—such, for instance, as the undoubted periodicity which occurs in some cases; and it is possible that there is also a capillary factor which has a direct action on the walls of the capillaries, quite apart from the alteration in the coagulation time. While evidence has been adduced that the unduly stable platelets of haemophilic blood break down normally when in contact with normal plasma, it is possible that much more normal plasma may be required to liberate sufficient thromboplastin to bring about normal coagulation than is required for the liberation of the capillary factor, if this exists.

The most striking case was a man who recovered after amputation of the leg for a compound fracture of the femur, which had become septic. This patient had been under my care, having prophylactic plasma for over a year, and during that time he had been much improved. He gave a typical history of haemophilia, and the blood-coagulation time was characteristic. The family history revealed that one cousin, two maternal uncles, and one maternal great-uncle had all died from haemophilia. Unfortunately the patient sustained a compound fracture, and when I saw him some weeks later two open sinuses were oozing blood and pus continuously, while huge masses of septic blood clot extended up the thigh. As would be expected the patient was very anaemic and cachectic. After ordering transfusion I expressed the clot through the sinuses by manipulation over two or three sessions. The wound was gradually cleaned by irrigation with peroxide and hypochlorite solution, and the application of sulphanilamide. It continued to ooze, however, despite transfusion because the sharp ends of the fractured bone, which were far apart, caused frequent trauma. I consulted with my colleague, Mr. Kenneth Pridie, and he agreed that the only hope of saving the patient's life was to undertake the formidable procedure of amputating the leg. This was successfully performed by Mr. Isserlin, the patient being transfused before and after the operation. At first all went well, but some days later I was asked to see him again as the stump was septic. The sutures had broken down, and underneath was a mass of foul-smelling, septic clot which oozed continuously. I removed masses of the septic material with my gloved hand, swabbed with peroxide until the stump was clean, then applied dressings soaked in plasma, which were successful in stopping the haemorrhage. I ordered another transfusion and also a combination of bipp and plasma to be applied to the wound. This was very effective; and when it was quite clean skin-traction was applied by Mr. Isserlin, and the wound was successfully sutured. All this time the patient had several transfusions, and 2 oz. (57 ml.) of plasma in milk by mouth, t.d.s. He was eventually discharged from the Bristol Royal Infirmary quite well. Since then he has taken the plasma by mouth and has remained well.

A point that I have always insisted upon is that pus and blood clot must be evacuated. A joint must be aspirated and aspirated again if permanently crippling adhesions are to be avoided; and again, a loose tooth which is oozing must be extracted before the patient becomes anaemic. Plasma by mouth, vitamin K, and plasma applied to the socket on a pad, with the patient biting on it, have always succeeded in stopping the bleeding.

There are other less dramatic cases which I could record did space permit, and some of these have been successfully treated solely by plasma given by mouth. But neither transfusion of blood nor plasma by mouth will have any immediate effect on controlling bleeding coming from the kidney. This is always troublesome, and takes some time to stop. Again, none of these measures will have more than a slight temporary effect when haemolytic pyogenic organisms are at work in the blood stream. The rule holds here, as elsewhere, that pus in any quantity must be evacuated if blood, plasma, or penicillin is to be effective. Whenever the condition is really dangerous the first measure should be immediate transfusion of plasma followed by properly grouped blood. (We found in the case described above that cross-grouped blood was infinitely more effective than ordinary stored blood.)

Finally, it is not claimed that the use of plasma by mouth is established by the apparent results obtained in a few cases, but since it has seemed to be very helpful, particularly as a prophylactic measure, it is recorded here so that others may assess its value in due course.—I am, etc.,

Bristol. FREDERICK SUTTON.

Fibrin Foam and Fibrin Films

SIR,—I have read with interest your annotation (Aug. 3, p. 165) on fibrin foam and fibrin films. May I draw your attention to a rather obvious mistake in the reference to sterilization? The writer states: "Fibrin film, in fine transparent sheets sterilized by glycerol or, more conveniently, by heat . . ." Obviously sterilization in glycerol would not do at all. What is meant by the original workers in this work is: heating in ethylene glycol to 120° C. for at least 10 minutes. The ethylene glycol is a plasticizer; were water the plasticizer or water-soluble plasticizers used in the composition of the plastic fibrin tissue-reaction would be much more marked even if the material survived the treatment. That it does not react kindly at all to any form of heat treatment was found in experiments by Sorsby, Dollar, and myself in 1944 (*Trans. ophthal. Soc. U.K.*, p. 187), and this has been the case in further work by me.

I also note the omission of reports of further progress—which has been considerable—in this field. I refer in particular to the work at Columbia, Vanderbilt, and Harvard, and at the Mayo Clinic, by Frantz, Light, Pilcher, Meacham, Uihlein, and a few others, describing oxycellulose, the gelatin-sponge, etc.—materials which have undergone considerable clinical trial in the United States. A full bibliography can be found in any of Dr. Frantz's admirable papers—namely, "Oxidized cellulose-absorbable gauze" (1945). *J. Amer. med. Ass.*, **129**, 798–801, or "New Absorbable Hemostatic Agents" (1946). *Bull. N.Y. Acad. Med.*, **22**, 102–110. Mention of and reference to published work in this new and interesting field of applied surgical research should in my opinion form part of any editorial which is to be regarded as a comprehensive account of achievement in any particular field it deals with.—I am, etc.,

Sutton. GEORGE BLAINE.

Penicillin Solutions for Injection

SIR,—In suggested methods for the preparation of penicillin solutions for injection "sterile normal saline" figures prominently in many publications. It has recently been adopted as an official recommendation by the *British Pharmacopoeia*. We have been puzzled as to why "normal saline" should be used for intramuscular or subcutaneous injection and we would be interested to learn if this has any specific merits over distilled water, which is the usual diluent for injection purposes. It would seem to add a quite unnecessary complication to penicillin therapy in general practice as "sterile normal saline" is not a very readily available material outside hospitals.

It is obvious that solutions for injection should be as near as possible to the tonicity of plasma and it seems probable that normal saline was recommended on the supposition that this would produce isotonic solutions. However, the tonicity of penicillin solutions depends not only on the presence or absence of sodium chloride but also on the amount of penicillin dissolved in the water and on the amounts of impurities present in the commercial sample apart from the active antibiotic. Commercial penicillin of 500 units per mg. contains less than one-third penicillin, and a solution of this material containing, say, 20,000 units per ml. will contain 40 mg. of the powder per ml., or 4% weight in volume of total solids. With higher potency material of 1,300 units per mg. a solution of 20,000 units per ml. will contain approximately 1.5% weight in volume of solids, and a solution made from the same material to contain 100,000

units per ml. will have a total solid content of approximately 8% weight in volume. These examples show how the nature of the solution varies with the purity of the penicillin used and the strength of the solution required.

Our results with red cell haemolysis given in the table below illustrate the tonicity of solutions of penicillin of different strengths and made from penicillin preparations of varying purity. For this work batches of penicillin of low potency, high potency, and pure penicillin were used. Solutions were prepared in sterile distilled water in small tubes and fresh human red cells were added. After 15 minutes at room temperature tubes were examined for haemolysis of the cells.

Batch of Penicillin	Potency u./mg.	Penicillin Units per ml. of Solution				
		50,000	20,000	10,000	5,000	2,000
"A" commercial	545	0	0	0	+	++
"B" "	1,358	0	0	++	++	++
"C" pure "	1,650	0	++	++	++	++

0 = No haemolysis. + = Partial haemolysis. ++ = Complete haemolysis.

It can be seen from the table that with sample "A" human red cells were partially haemolysed in a solution containing 5,000 units per ml. but not in the more concentrated solutions. Solutions containing 10,000 units per ml. of the higher potency sample "B" were hypotonic, whereas with 20,000 units per ml. no haemolysis occurred. Solutions containing 20,000 units per ml. made from pure penicillin were hypotonic but not those containing 50,000 units per ml. These results can be substantiated by the cryoscopic method. The more concentrated solutions of penicillin are certainly hypertonic, and the addition of sodium chloride would appear to be quite unjustifiable for this would only increase the hypertonicity.

Information at present available does not indicate that sodium chloride has any advantage in maintaining the stability of solutions of penicillin. The recommendation of the *British Pharmacopoeia* that solutions for injection should not be kept for more than seven days at 4° C. is certainly sufficiently cautious.—We are, etc.,

J. UNGAR.
R. DENSTON.

Glaxo Laboratories, Ltd.

Syphilis Masked by Penicillin

SIR,—The possible danger of masking an incubating syphilis during treatment of a recent gonorrhoea by penicillin, first suggested by Scott Cowe and myself (1945) and recently echoed independently (1946) by Allan, Batchelor, Donald, and Murrell, is really part of the wider problem of therapeutic penicillin generally, and I would suggest that the following criteria are essential in any true evaluation, both immediate and remote, of this truly potent preparation.

(1) Penicillin is bacteriostatic and bactericidal to many pathogenic and non-pathogenic organisms. (2) It has no effect on increasing the defensive and reparative processes of the body. (3) It has no effect on "walled-off" lesions, and it is so rapidly excreted that on cessation of treatment its effect quickly falls to zero. Consequently any organisms that escape destruction must be dealt with by the body defences *per se*. (4) Time and dosage factors.—Period of administration and dosage are of necessity empirical, and cure rates approaching 100% in no way absolve us from individual assessment in every case. (5) Instability.—This property bids us be ever on our guard against loss of potency, more especially now that penicillin is generally released from central control. (6) Lastly, a point that often receives scant attention—i.e., that the pathological and reparative processes brought about by disease may by their very nature militate against cure although the causative organism is very susceptible to the drug.

If due consideration is paid to all the above factors many interesting possibilities, sometimes amounting to probabilities, suggest themselves. For instance, apart altogether from masking an incubating syphilis the typical lesion of syphilis itself, especially when modified by time, tends to assume a "walled-off" lesion, and perhaps here we have the explanation of the higher failure rate the later treatment is commenced. Again, on purely pathological grounds in ulcerative endocarditis I would suggest that the result of treatment is to convert phase (i) characterized pathologically by the "raw" valve and clinically by bacteriaemia, emboli, and fever to phase (ii) characterized by the "healed" valve of the well-known asymptomatic stage. Claims of cure therefore must be viewed with a healthy scepticism, and perhaps repeated courses may be necessary to control the disease. From the listed criteria also the disappointing results in dermatology are more easily understood. And finally, in view of the recent recognition of the value of some intestinal bacterial products to the body economy the non-toxicity of penicillin may have to be reconsidered since it is possible that syndromes, perhaps long-delayed and apparently unconnected with the therapy, may occur. The partially successful attempts of oral therapy increase this possibility, and it is interesting to record that in a personal communication Dr. Doyne Bell has encountered a widespread purpura developing after treatment by oral penicillin which responded to vitamin therapy.

Finally, may I digress in order to ask if the subcutaneous implantation of solid penicillin has been tried as a means of prolonging its action as this method has been so highly successful in the use of other preparations?—I am, etc.,

London, W.1. F. L. LYDON.

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The Pathogenesis of Cancer

SIR,—I was interested to read in the *Journal* of Feb. 16 (p. 242) the annotation headed "Testosterone Prophylaxis of Mammary Cancer" and in particular this sentence: "A major outcome of cancer research in recent years has been the recognition that many tumour types are closely dependent upon specific hormonal changes for their inception and, in some cases at least, for their subsequent growth." I would like to offer the following observations.

Being unable personally to undertake researches which would be costly and prohibitive to the general medical practitioner, I wished to stimulate investigations in cancer on the crux of the problem, the solution of which is of such far-reaching importance to the world in general. After the termination of my studies for entry into the medical profession at Madrid I published an article "A Hypothesis on the Pathogeny of Cancer" in the review *El Siglo Médico* (1927, No. 3857, p. 467) in which I suggested the following: (1) Cancer is a neoformation made up of epithelial cells which regain their embryonal karyokinesis owing to the absence or weakness of the endogenous stimulus which would restrain commonly cellular mitosis. (2) This stimulus is represented by some of the sexual hormones. (3) Despite the control or check which prevents the excessive multiplication of the cells these retain their tendency to divide and in fact are relatively autonomous, and it is indispensable to assist organic necessities.

Many years since I have had the satisfaction of confirming that the researches on the cancer problem are proceeding on the lines we indicated in 1927, and I am glad that my theory has been a small contribution to cancer research, though I am far from suggesting that it would have solved a problem of such immensity.—I am, etc.,

Mahón, Minorca. A. CURIESES DEL AGUA.

Africans, Peptic Ulcers, and Parasyphilis

SIR,—If Abdulla read the *B.M.J.* he would be hurt by Sir Heneage Ogilvie's comment (May 25, p. 800) that Africans seem to be immune to peptic ulceration. For Abdulla is an old Nubian, who blew the bugle for Kitchener at Omdurman and, domiciled in Kenya, suffered from abdominal pain and repeated haematemeses, until in 1941 Sir Heneage (then Col.) Ogilvie performed a partial gastrectomy for a gastric ulcer which had penetrated to the pancreas. The result has been excellent and the writer, as the mere go-between, receives periodic presents of eggs from a grateful patient. Acute and chronic progressive peptic ulcerations, with haemorrhage and perforation as complications, do occur in East Africans, probably less commonly than amongst Europeans, and perhaps with a greater incidence amongst the urban African than

the others. Perhaps Sir Heneage Ogilvie does not mean us to take him literally, but I fear that we must be blamed for having failed to wrest him from our surgical colleagues—how else can we explain his comment (*Lancet*, 1945, **2**, 586) that the African "contracts syphilis, but it never goes on to parasyphilis"? Meningovascular syphilis, epileptiform attacks from cerebral syphilis, and general paralysis of the insane are far from uncommon, although tabes dorsalis is, apparently, peculiarly rare.

If we have given any false impressions to our visitors, we apologize; for, if Sir Heneage Ogilvie found the officers of the East African Medical Service helpful, we greatly appreciated the visits of the surgeons and physicians, who lightened our darkness and enriched our B.M.A. meetings.—I am, etc.,

FREDK. J. WRIGHT, M.R.C.P.,
Medical Officer, Kenya.

Nairobi.

Menstrual Changes in Hot Climates

SIR,—Dr. W. P. Grieve (Aug. 17, p. 243) asks if any investigation was made of menstrual variations among auxiliaries serving in hot climates. In 1944 I obtained menstrual histories at medical inspections or special interviews from 500 British Service women of whom 42 were Q.A.I.M.N.S. and 458 A.T.S., and whose service in the Middle East ranged from six months to two years.

Menstrual changes, chiefly menorrhagia, were common, but amenorrhoea was not at all a prominent condition. Only 11 had suffered from amenorrhoea on arrival for a time ranging from six weeks to five months, whereas 32 had previously experienced amenorrhoea of from two months to two years, either between the ages of 16 and 20 on starting nursing (15 out of 42 nurses) or on joining the A.T.S. Six of these 32 had again had amenorrhoea on arrival in the Middle East and are included in the 11 mentioned above.

It would seem therefore that a change to a hotter climate is not in itself a prominent cause of amenorrhoea.—I am, etc.,

MARGARET E. R. BALFOUR.

London, S.W.7.

Foreign Body in the Gut

SIR,—I enclose an account of a case that came into my hands more than a quarter of a century ago. There are several features of interest:

Female patient. Complained of chronic diarrhoea for last two years. *Previous history.*—Hysterectomy two years previously. Felt well for ten days after operation, when sudden attack of diarrhoea occurred. *Examination.*—Patient pale, thin, looked ill. Tumour felt in right iliac fossa. Carcinoma of caecum suspected. Barium enema shows normal caecum. *Operation.*—Incision right iliac fossa. Caecum and appendix normal. Hard mass felt within small gut about one foot above ileo-caecal valve. It was found impossible to move the mass either way within the lumen of the gut, so the loop was isolated, the mass removed, and the incision in the gut wall closed. The patient made an uninterrupted recovery, and the diarrhoea ceased almost immediately.

The mass was about the size of a cricket ball and proved to be a complete coiled-up strip of gauze. Presumably it had gravitated to the upper abdomen while the patient was in the Trendelenburg position during the hysterectomy, been inadvertently left in, and become shut off between the transverse colon and the jejunum. Spontaneous junction had followed and the gauze had slipped into the jejunal lumen.

I am, etc.,

D. LIGAT.

St. Leonards-on-Sea.

Demobilized Service Medical Officers

SIR,—On a recent trip I have had an opportunity of seeing a number of ex-Service medical officers, and it has been something of a shock to realize the strong feeling which prevails among them about their treatment by the Service. It is alleged very bitterly that men who have been doing specialist work, although they were "given to understand" or as some say "promised" that after demobilization they would be given the benefit of further training in their specialty, have been "fobbed off" with a short refresher course. Who is responsible for what they regard as a gross breach of faith I am not in a position to say. It has even been suggested that it is part of a subtle plan to cause disgruntlement, dissatisfaction, and even pressing need—as it was put to me: "to throw us into Bevan's arms to work his National Health Service from sheer necessity to earn bread and butter."

It seems to me that the time has come to appoint a B.M.A. ex-Serviceman's Committee composed of ex-Service medical officers, with a chairman who would be an *ex-officio* member of Council, to deal with the acute problems of a very large number of our profession whose lot in many cases could be described not unreasonably as nearing desperation.—I am, etc.,

H. M. STANLEY TURNER,
Wing-Comdr., R.A.F. (retd.).

Brookwood.

The London College of Osteopathy

SIR,—As the Dean of the above college it is my duty to reply to the letter from Mr. W. E. Tucker (July 27, p. 141). Whatever the orthopaedic surgeons or the physiotherapists know of manipulation has been gleaned from the osteopaths. Twenty-five years ago an article in a leading British medical journal stated it was impossible to move by manipulation any joint of the spine. This was the generally accepted view of the medical profession. If it had not been for the osteopaths the progress of manipulation within the orthodox profession, inadequate as it even now is, would have been exactly nil.

Within the last ten years neurological and orthopaedic surgeons have "discovered" that many cases of sciatica are due to pressure, probably from intervertebral disks, on the roots of certain nerves. Forty years previously osteopaths had pointed out that frequently sciatica was due to pressure on nerves from mechanically deranged tissues of the lumbar region, including the intervertebral disks. The interesting and illuminating surgical advances that are being carried out in connexion with the intervertebral disk have already gone far to establishing the osteopathic lesion as an aetiological entity. The development and proper assessment of the osteopathic lesion is still, however, in its infancy, and while many mis-statements have been and still continue to be made about it there is no shadow of doubt about its existence. As the Minister of Health recently pointed out, the heterodoxy of yesterday frequently becomes the orthodoxy of to-day, and the medical profession to-day practised many forms of therapy which it yesterday rejected.

The basic principles that are to be taught at the above college have been circulated to all educational bodies in this country, and they are not erroneous. We are confining our students to registered medical practitioners so that the osteopath of the future will be adequately trained in the basic principles of medicine and will have educationally conformed with the requirements of the authorities of the land.

There is no ulterior motive behind the action of the British Osteopathic Association such as Mr. Tucker suggests. The sole object is to promulgate the principles and technique of osteopathy and to prevent the exploitation and overlaying of the art of manipulation by any sectional interests such as he represents.

The British Osteopathic Association is not asking for any recognition from the medical profession or any other body. If British medical practitioners do not care to avail themselves of this opportunity there is an end to the matter, but any organized boycotting of this unselfish and laudable effort of the British Osteopathic Association will necessarily play into the hands of the inadequately trained osteopath whom the Select Committee of the House of Lords rightly exposed.—I am, etc.,

GEORGE MACDONALD.

London, W.1.

Osteopathy

SIR,—Mr. W. E. Tucker (July 27, p. 141) refers to the basic principles of osteopathy as erroneous. In any curative method conceptions about its basic principles—from advocates or opponents—are less important than good results. It has even happened in the past that the one has had to be adjusted to meet the demands of the other. As regards osteopathy in its actual clinical results, I do not believe this has ever been fairly investigated by our profession.—I am, etc.,

S. RANSOM.

New Malden.

Unsigned Reviews

SIR,—I heartily endorse Mr. H. Osmond Clarke's views on anonymous reviews (July 20, p. 102). Why should a signed author be "potted at" by an unsigned reviewer? In a review of *A Descriptive Atlas of Radiographs* it was stated that the plates were placed haphazard when it was one of the key features that the normals were arranged on the left- and the abnormals on the right-hand pages so as to be readily compared with one another. Protest brought no satisfaction. I once had the good luck of recognizing one reviewer by a certain cheapness which characterizes his writings. I have approached several editors, but they merely state that the good name of their respective journals was sufficient safeguard against wrong judgment. Let us at least have initials.—I am, etc.,

London, W.1. A. P. BERTWISTLE.

Protection against Sexual Offences

SIR,—Dr. Clifford Allen, in his letter (July 27, p. 136) criticizing the efficacy of short-term imprisonment in preventing the repetition of sexual offences, asserts that "the only solution to this problem would be to give the prisoner a life sentence or else to regard the behaviour as an illness and treat it."

I would agree with his alternatives had his last phrase read "and cure it," for is it a solution for an unsuccessfully treated pervert to be released, again to debauch children and maybe to commit murderous assaults upon women?

He asserts that few cases receive treatment in prison, but can he assure us that treatment by a psychiatrist would produce the high percentage of cures that would be necessary to allay the fears of those who would go to any length to protect women and children from outrage?

As a general practitioner with no experience of the technique of psycho-therapy, my psychopaths and neurotics return to me after periods of treatment by psychiatrists, and few appear to have received benefit from their treatment. Can one expect any better results from the treatment of those sentenced for sexual offences? One can, however, put forward a proposal which would, I think, solve this problem. By the obligatory castration at the commencement of his sentence of every person convicted of a sexual offence against a woman or child, one could assume that, at the end of his incarceration, impotence and loss of desire would render him incapable of harm, and during the period of his imprisonment such treatment as may be considered desirable could be rendered without any misgivings on the part of the psychiatrist as to the effect upon some innocent third party of a failure of treatment.—I am, etc.,

London, N.15. L. B. LIEBSTER.

The Epidemiology of Infectious Diseases

SIR,—With reference to my letter (June 8, p. 887), I beg to suggest that the clue to the mystery of the mechanism by which infection in influenza and other epidemic diseases survives through long interepidemic periods is to be found in the instability of the molecular structure of viruses. Fenton (1945) writes:

"[Viruses] are giant molecules containing hundreds of thousands of atoms that are linked in complex groups and series. For generations these molecules may remain stable. Then they abruptly change. Thus the virus which normally causes tobacco mosaic may add a few thousand atoms and become a variety that produces the much more virulent disease known as acuba. Other modifications may cause a disease that kills the affected plant [outright] or make the virus so weak that its effects can barely be detected. Apparently a single virus strain may appear in any or all of these forms, shifting from one to another as atoms are gained or lost."

An analogous mechanism in bacteria also may not unreasonably be inferred. The variations in virulence which commonly occur in epidemic diseases are well illustrated by the history of scarlet fever. According to Singer (1928) scarlet fever first became clearly recognizable as a mild disease without prominent symptoms about 1650. Good observers in the half century which followed considered it a new disease. In England it continued to be of little importance till about 1748, when it began to be associated with grave throat symptoms. This phase continued for about ten years. The virulence then dropped, and the disease continued of slight importance till 1785. It then grew virulent again and remained so until about 1808. The malignancy then fell and remained low for about thirty years. It rose again about 1837, and from then till 1894 it was one of the great killing diseases, especially of children. Since then the mortality from it has steadily decreased.—I am, etc.,

Sydney, N.S.W. J. WALKER TOMB.

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The Burden of the M.R.C.P.

SIR,—Whatever may be the case in the future, many of the people who have taken the M.R.C.P. did so in order to enter consulting practice, of course hoping that the day would come when they would be elected to the Fellowship. But what did not strike them was that if that day did not dawn the M.R.C.P. would be worse than useless because as the years go by and the man remains a member some of the doctors who have been in the habit of referring patients to him begin to think that his abilities are after all less than they thought. If he had never taken the membership but had his M.D. the idea that the absence of the fellowship was a stigma would never have struck them.

The disability under which the M.R.C.P. of many years' standing labours is the greater because he is probably not on the staff of a teaching hospital: a lack which makes his path as a consultant more difficult. Of course the member of a teaching hospital staff is more likely to get the fellowship, mainly because his senior colleagues are likely to propose him, whereas nobody is likely to be so directly interested in the non-teaching consultant.

Would it not be more equitable if after the lapse of not less than five years after taking the M.R.C.P. the member might submit his name together with such evidence of professional attainments (excluding testimonials and the names of referees) as he thinks might convince the College that he is a fit and proper person for election to the Fellowship?—I am, etc.,

DUM SPIRO SPERO.

Notification of Venereal Disease

SIR,—In his letter advocating compulsory treatment, Dr. G. G. Thyne (Aug. 3, p. 175) states: "It would be a very strange man, whether he was a venerable dean or bus conductor, who has not at some time or other run the risks of venereal infection." This statement requires challenging. It is based on the old heresy, unfortunately still implied in some health lectures, that to refrain from promiscuity is unnatural, abnormal, or even detrimental to health. This heresy is not only contrary to considered medical opinion but is disturbing to parents and youth leaders and entirely opposed to the ideals of pre-Service units, whose charges are entering the Services daily. Furthermore it is deeply resented by a large body of men (and women) who, conscious of natural desires to satisfy a normal sex urge, not only prefer to wait for that complete satisfaction they look forward to experiencing in the permanent companionship of a future marriage with its harmonious union on all levels, but intelligently refuse to spoil its resultant happiness by either the possible risks of V.D. or the sordid memories so often associated with the doubtful pleasures of the temporary liaison of promiscuous living. As it also encourages men of poor moral sense, and causes others, who but for the dislike of being thought unnatural, etc., would not otherwise do so, to expose themselves to infection, the continued propagation of this heresy is detrimental to the efforts being made for the prevention and control of V.D.

There is a vital need to-day for men (and women) to understand that even if the risks of V.D. and pregnancy could be completely eliminated there still remain the results of the promiscuous act itself. These are not only the psychological disharmony arising out of inner conflict and leading on to disintegration of the personality and a loss of self-respect, but also (and this is important) a serious undermining of those qualities of love, loyalty, and responsibility essential to successful, stable, and permanent marriage, resulting in a serious collapse of home and family life. This not only causes severe mental strain and physical ill-health to the parties concerned, but robs children of that love and sense of security essential to their moral and physical health.

The only measure giving complete protection is "self-control." This is neither easy to advise or carry out. But where, in addition to advice necessary to protect the wilfully promiscuous, the preventive of self-control is presented in terms of "consideration for others" men will respond grandly to an appeal to face up to this duty which is embodied in the common ethic of Christianity and sportsmanship. These facts are borne out by an experience of Service life (recruit to combatant officer, home and abroad, in peace and on active service) and youth- and marriage-guidance work.

In closing, and for the encouragement of those called for duty in the Services, some twenty years of lecturing on the above lines to recruits (men and boys) of the three Services show that such information, far from being resented, is sincerely appreciated. The outstanding question, "Why are we not given this information by parents, schools, etc., earlier?" or "now, by our own M.O.s?" is a challenge not only to those responsible for the health and leadership of young men and women, but to those bodies responsible for their training.—I am, etc.,

Bristol. WILFRID WAGLAND.

Post-haemorrhagic Blindness

SIR,—Recent communications in the *Journal* prompt me to put yet another case of post-haemorrhagic blindness on record. The patient (a fisherman aged 54) was admitted to hospital in an extremely weak and collapsed state as a result of recurrent melaena over a period of four days previously. At the time of admission haemoglobin estimation was 30% (Haldane), plasma CO_2 78 vols. per cent, and the blood urea 40 mg. per 100 ml. The patient was transfused with two pints of Group O blood and on the following morning awoke to find that he was partially blind in the left eye.

Ophthalmological examination revealed a normal right visual field, but the left was contracted to a horizontally disposed band nasally and upwards, including the macular area. The left disk appeared to be definitely pale and there was no evidence of swelling.

Subsequent progress was uneventful: the anaemia responded to the exhibition of iron, with a gradual improvement in the patient's condition. Test-meal showed a hyperchlorhydria with blood in several specimens, and barium-meal examination indirect evidence of ulceration of the first part of the duodenum. Occult blood was present in the stools for some days before becoming persistently negative. Vision in the left eye, after slow improvement initially, has recovered considerably over a period of sixteen months despite the complete optic atrophy, which is now evident.

The unilateral visual loss is not as common as bilateral defects, but of course both are rare complications of haemorrhage.—I am, etc.,

Aberdeen. WILLIAM R. GAULD.

Sir Frank Colyer Fund

SIR,—I would like to quote the old proverb, "Whatsoever thy hand findeth to do—do it with all thy might," for in suchwise Sir Frank Colyer has ordained his life should be lived, and the dental profession has reaped in full measure the harvest of his strenuous labours. The writer had the privilege of seeing their commencement when sixty long years ago Sir Frank was assistant house-surgeon at the Royal Dental Hospital; and many old students there must be who in later years knew him, and remember him as teacher and Dean. His pen too has enriched clinical and scientific dental literature, while for over thirty years he has been curator of the museum of the Odontological section of the Royal Society of Medicine. So successful has been its growth and development that it is now amalgamated with the Hunterian Collection in the Royal College of Surgeons museum.

As a mark of appreciation for his sixty years of tireless and high endeavour it is proposed to make a gift to him of his portrait on September 25—his 80th birthday—a gift not from any learned society but from the rank and file of the dental profession. As one of them I appeal to all and sundry to contribute generously to that gift. Contributions should be addressed to: Mrs. Thurston, "Brentknoll," Radlett, Herts, and envelopes marked "Sir Frank Colyer Fund." Any surplus after paying for the portrait will be used as a fund for the further development of the Odontological Museum.—I am, etc.,

Nottingham. F. C. PORTER.

Obituary

OTTO MAY, M.A., M.D., F.R.C.P.

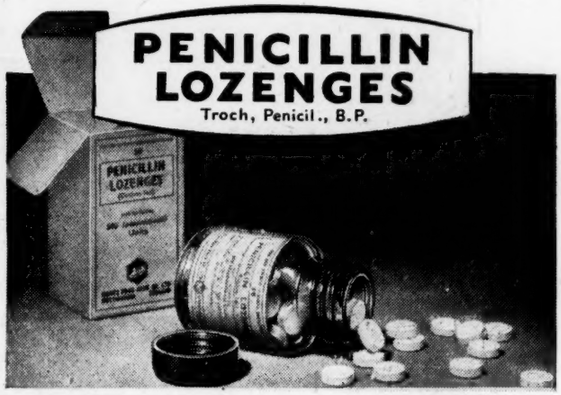
The sudden death of Dr. Otto May deprives the community and the medical profession of a singularly able and attractive personality, and will make a deep breach in the many circles of friends where his presence was always a refreshment and a delight.

Otto May was born in 1879, educated privately and at St. John's College, Cambridge, where he took a first in both parts of the Natural Sciences Tripos. Remaining in Cambridge he became a demonstrator in physiology and a most successful coach. He also made a real attempt to enter research, and at the instance of Prof. Langley undertook a study of the mechanism of pancreatic secretion that is excited by the entry of acid into the duodenum. It so chanced that Bayliss and Starling were also engaged upon this research problem, and their discovery of secretin, and the general conception of hormones that arose from it, solved the question to which May was, independently, seeking the answer. He thereupon came down and entered University College Hospital to take his medical degree. He was one of a small number of brilliant young men who entered the hospital from Cambridge at about that period, and lent to the student body of their time an animation and a distinction that the present writer, who was their junior, still retains as one of his happiest recollections.

His hospital career was highly successful. He took the Atchison Scholarship and the Liston medal and, upon qualification, a British Medical Association research scholarship. He was later one of the first group of Beit Memorial Fellows, in a group which included the late Sir Thomas Lewis and Sir Edward Mellanby. For a time he worked in the laboratory of Sir Victor Horsley, and some original papers in *Brain* mark this period of his life. Turning then to clinical medicine he showed the same easy brilliance of which his earlier activities had given earnest, and would in time have doubtless made a mark for himself in consulting medicine, but shortly after becoming physician to the Evelina Hospital for Children he made his last change and entered what was to be his life's work, the field of insurance medicine. As principal medical officer to the Prudential Assurance Company he quickly made his mark on this field of medicine, in which he became a recognized authority, revivifying it and bringing it into touch with the advance of medicine. His contributions to the transactions of the Assurance Medical Society were of outstanding merit and gained for him the unusual distinction of honorary membership of the Association of Life Assurance Directors of America. Outside this work his deepest and most abiding professional interest centred round the problems of venereal disease, a subject to the elucidation of which he wrote a number of forceful, clear, and valuable papers in various journals. At the time of his death he was chairman of the British Social Hygiene Council; and he will be deeply missed by his fellow workers on this body.

Otto May was a fervently loyal son of his old hospital, and his memory is perpetuated there by the *U.C.H. Magazine*, of which he was one of the founders and the first editor. But it is not wholly or mainly of these fruitful achievements that those who had the delight and privilege of his friendship will now be thinking. Otto May was far more than the work he did. His friends will recall his perennially youthful spirit, which the passing years seemed not to have touched, his singularly attractive smile and his whimsical humour, his modesty, those warm family feelings that made his home so pleasant a haven, his live interest in the humanities, and his complete integrity. The sympathy of all his friends will go out to his wife and to his two sons in their loss.

Dr. T. W. PRESTON writes: I first became associated with Otto May in 1927 and worked with him at the Prudential Assurance Company until he retired in 1938. As an authority on assurance medicine he had a reputation which extended to all parts of the world where life assurance is conducted. He had an alert brain and considerable clinical acumen, although it was many years since he gave up clinical medicine; there is no doubt that had he chosen another path he would have attained a reputation as a consulting physician. May chose to pose as something of a cynic; but this was a thin veneer which deceived nobody. His friends mourn a loved and warm-hearted colleague.



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Her many friends were shocked to learn of the sudden death of Dr. ELEANOR CICELY THISTLETHWAITE. She was born in the Philippines in 1896, and after graduating M.B., Ch.B. at St. Andrew's, held resident posts at the Queen's Hospital for Children, Hackney. Between 1926 and 1931 she was in general practice in the Gray's Inn Road and Camden Town, and then held various temporary posts, including one at the London Lock Hospital. In 1935 she became visiting medical officer to St. Margaret's Hospital, Kentish Town, where she was responsible for the care of children suffering from vulvo-vaginitis and ophthalmia neonatorum. She carried on this work until the outbreak of war, when she was appointed medical officer to a mobile Naval train, and rendered valuable service during the evacuation of the wounded after Dunkirk. Subsequently she was appointed assistant medical officer of health, St. Pancras, with special responsibilities in connexion with air raid precautions, and served all through the first London bombardments, often staying at the first-aid stations both by night and by day. The late Maitland Radford formed a very high opinion of her conduct and services throughout this testing time, and commended her most warmly to the writer. At the beginning of 1943 she was appointed assistant medical officer, County Borough of Southend-on-Sea, and did valuable work, both in the school medical service and the V.D. treatment centre. She gained the confidence of patients, parents, and children; her kindly personal interest and wide experience of life quickly enabled her to make a unique position for herself, and her sudden and untimely passing leaves a gap which will not easily be filled.

Dr. COLIN MACPHAIL FORBES died suddenly at Weymouth on August 13 at the age of 48. He was born at Ayr and educated at Ayr Academy and Glasgow University, graduating M.B., Ch.B. in 1921. He practised in Weymouth for the major part of his career and was honorary surgeon to the Weymouth and District Hospital. He was a member of the B.M.A. from the time he qualified. Dr. Forbes was a man of many interests and activities, and the crowded church at his funeral service testified to the esteem and affection with which the townspeople of Weymouth held him. He was a surgeon sub-lieutenant in the 1914–18 war and performed his first operation in amputating his captain's finger in an open lifeboat after his ship had been sunk. He was a keen musician and fine pianist. In 1939 he was admitted as a Serving Brother of the Order of St. John and acted as County Commissioner for Dorset in the Brigade. Forbes was called up in 1939 with the Territorials and served throughout the war in the rank of lieut.-colonel. He had a dry sense of humour and his after-dinner speeches were a delight to all who heard him. "Forby," as he was affectionately called by colleagues and friends, will be sadly missed. —E. P.

BERTRAM SYDNEY NISSÉ, M.D., M.R.C.P., who died on Aug. 14 at Teignmouth Road, Brondesbury, N.W., had made his mark in physical medicine and was a vice-president and former secretary of that Section of the Royal Society of Medicine. Born in 1898 he was educated at St. Olave's School and the London Hospital, where he won the Buxton scholarship in arts. He qualified in 1921, took the M.B. and B.S. degrees of the University of London in the following year, and won the university gold medal in medicine at the M.D. examination in 1924. After holding various junior posts at the London Hospital and at the West End Hospital for Nervous Diseases he became resident medical officer and then chief assistant and medical registrar at the National Hospital for Diseases of the Heart; later he was elected physician to the British Red Cross Society's Clinic for Rheumatism in Regent's Park, when it was established in 1930. Dr. Nissé published a number of papers dealing mainly with cardiology and rheumatism in medical journals and in the *Annals of Eugenics*; he also wrote a small book *Rheumatism* published in 1938. He was a Fellow of the Medical Society of London and the Hunterian Society, and the International Society of Medical Hydrology made him a member. During the war years, while Dr. W. S. C. Copeman was on service in the R.A.M.C., Dr. Nissé took charge of the rheumatism clinic at the West London Hospital. His early death is a loss to the campaign against rheumatism in this country.

We regret to learn of the death in Edinburgh recently of Dr. HUGH FERGUSON WATSON who, for over 14 years, was Medical Deputy Commissioner of the General Board of Control. Before taking up medicine Dr. Watson had been in business for several years. He first qualified as L.R.C.P., L.R.C.S.Ed., L.R.F.P.S.Glas. in 1907, then graduated as M.B., Ch.B.Glas. in 1911. He became assistant medical officer at Glasgow District Mental Hospital, Woodilee, and collaborated with Prof. Carl Browning and Dr. Ivy McKenzie in research on the Wassermann reaction in syphilis. He made this subject his thesis when, in 1913, he was awarded the degree of M.D. with honours. In August, 1913, he was appointed medical officer at H.M. Prison, Peterhead, and eight months later became M.O. at Perth prison and medical superintendent of the Criminal Lunatic Department. In 1916 he gained the degree of Ph.D.Ed. In October, 1919, he was appointed Deputy Medical Commissioner of the General Board of Control, an office he held till he retired in March, 1934. In 1928 he became a Fellow of the Royal Society of Physicians and Surgeons of Glasgow, and three years later a Member of the Royal College of Physicians of London. On the outbreak of war Dr. Watson's services were enlisted in a team of voluntary members of the E.M.S. prepared to cope with any development of neurosis in the civilian population. Of a retiring and studious disposition, Dr. Watson was held in high esteem by his colleagues who were favoured by his friendship, and these mourn the passing of one whose knowledge of men and motives was wide and well-founded, whose opinion was valued, and who did much good unostentatiously.—J. H. M.

The Services

The Legion of Merit, Degree of Officer, has been conferred upon Major-Gen. Sir Edward Phillips, K.B.E., C.B., D.S.O., M.C., late R.A.M.C., and the Bronze Star Medal upon Col. (Temp.) T. Parr, and Major C. C. Misener, R.C.A.M.C., by the President of the United States of America, in recognition of distinguished services in the cause of the Allies.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in the Far East: Capts. D. L. Broadhead and D. H. K. Soltau, R.A.M.C., Lieut.-Col. (Temp.) S. L. Rikhye, and Capts. B. B. Chetrie and Lal Chand, I.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Died from injuries received in car accident.—Flying Officer William Caldow Adam, R.A.F.V.R.

Universities and Colleges

UNIVERSITY OF OXFORD

The Theodore Williams Scholarship in Human Anatomy, 1946, has been awarded to M. J. V. Bull, University College. (Proxime accessit: R. G. Willison, Trinity College.)

UNIVERSITY OF CAMBRIDGE

H. Hynes, M.D., of St. John's College, has been appointed Reader in Medicine from Oct. 1, 1946. C. L. G. Pratt, M.D.Liverp., has been appointed University Lecturer in Mammalian Physiology from Oct. 1, and G. P. McCullagh, of Queen's College, University Lecturer in Pathology for three years from Oct. 1. H. Butler, M.B., B.Chir., of Queen's College, has been appointed temporary University Demonstrator in Anatomy.

UNIVERSITY OF LONDON

The prize distribution and a conversazione will be held at the Royal Dental Hospital of London, School of Dental Surgery, 32, Leicester Square, W.C., on Saturday, Oct. 5, at 3 p.m., when the Minister of Health, the Rt. Hon Aneurin Bevan, M.P., will present the prizes.

Medical News

The work carried out by the Save the Children Fund at Lübeck deeply impressed Sir Hugh S. Robertson on his recent visit to Germany with the Glasgow Orpheus Choir. The choir has sent a gift of £100 to the Fund. In Yugoslavia a group of mothers have expressed their gratitude to the fund workers at Kamenica, and in Greece a relief worker of the fund, Miss A. Forster, has been presented with the Freedom of the City of Xanthi.

Sir John Boyd Orr, Director-General of the Food and Agriculture Organization of the United Nations, hopes that a successor to his post may be found after the autumn conference at Copenhagen. He had previously made it clear that his was a temporary appointment; and his intention is to return to Parliamentary duties as soon as he is released.

The International Anaesthesia Research Society and the International College of Anaesthetists have issued a preliminary programme for the twenty-first Congress of Anaesthetists, which will be held at New York City on Sept. 9–13, 1946. Discussions on all branches of anaesthesia have been arranged, including reports of clinical trials of a new anaesthetic, "metopryl." On Sept. 12 Dr. T. Cecil Gray, of Liverpool, will read a paper entitled "The Use of d-Tubocurarine Chloride in Thoracic and Abdominal Anaesthesia."

Mr. W. McAdam Eccles, M.S., F.R.C.S., consulting surgeon to, and governor of, St. Bartholomew's Hospital, who died on May 30, aged 79 years, left £5,740 15s. 4d. gross, with net personalty £4,367 3s. 6d. Specific bequests included his surgical instruments and appliances to the Regions Beyond Missionary Union; his medical and surgical books to the council of the West London Medico-Chirurgical Society; and his caricatures of past members of the medical staff of St. Bartholomew's Hospital to the governors of the Hospital. The residue of his property he left to his sons Philip Campbell Eccles and David McAdam Eccles, M.P.

EPIDEMIOLOGICAL NOTES

Typhoid Epidemic

Notifications from the Aberystwyth epidemic reached a total of 135 by Aug. 27, and there have been 4 deaths. It is not expected that there will be many more cases in the town itself.

Cases of typhoid infected at Aberystwyth are still being reported from other areas. Within the last week Northampton has had 5 cases, all returned holiday-makers, Oldbury 4, Banbury 2, Keighley 1, and Stafford 1.

Ice-cream Again

An outbreak of food-poisoning has occurred in Boston, Lincolnshire. Ice-cream from one source, prepared by the cold mix process, was consumed by the 70 cases investigated. *Salm. typhi-murium* has been isolated from the stools of notified cases but not from the ingredients of the ice-cream.

At Coatbridge, Lanarkshire, 36 people are under observation after eating ice-cream prepared by a man believed to be a typhoid carrier.

Discussion of Table

In *England and Wales* there were decreases in the notifications of scarlet fever 233, measles 241, whooping-cough 182, and pneumonia 58. An increased incidence was reported for typhoid 29, and dysentery 25.

A fall in the notifications of scarlet fever was reported in most areas of the country, and notably in Staffordshire 49. The largest decreases in the incidence of whooping-cough were London 38 and Warwickshire 33.

There were fewer cases of measles in Middlesex 106 and Surrey 69, and more notifications in Durham 60, Lancashire 38, and Warwickshire 31. Cases of diphtheria fell by 3 below last week's record low level; the largest of the local variations were an increase of 12 in London and a decrease of 11 in Staffordshire. The largest returns of dysentery were those of Lancashire 15, Kent 13, and London 12.

In *Scotland* there were decreases in the notifications of acute primary pneumonia 33 and scarlet fever 16. A decrease of 7 in cases of dysentery gave the lowest return for recent months.

In *Eire* the large increase of 99 in cases of whooping-cough was mainly due to an outbreak involving 88 persons in an institution in the rural district of Dublin North. The rise in the incidence of diarrhoea and enteritis was due to 38 cases notified from an institution in Dublin C.B. in respect of previous weeks.

Quarterly Return for Eire

During the March quarter a birth rate of 22.5 per 1,000 was recorded, which was 0.9 above the rate for the first quarter of 1945. Infant mortality was 81 per 1,000 births and was 8 and 20, respectively, below the rates for the two previous March quarters. The general death rate was 17.4 per 1,000, being 1.1 below the 1945 figure. Altogether 239 deaths were attributed to diarrhoea and enteritis under 2 years; this was 28 above the average for the five preceding first quarters. Deaths from pulmonary tuberculosis numbered 677 and from other forms 197, figures which were 183 and 39 below the averages of the five preceding March quarters. There were 46 deaths attributed to diphtheria and 34 to whooping-cough.

Week Ending August 17

The notifications of infectious diseases in England and Wales during the week included, scarlet fever 690, whooping-cough 2,097, diphtheria 251, measles 2,712, acute pneumonia 300, cerebrospinal fever 47, acute poliomyelitis 33, dysentery 70, paratyphoid 60, typhoid 53.

No. 32

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug. 10.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	34	2	19	—	1	33	—	16	1	1
Deaths		—	—				1	—		
Diphtheria	243	30	74	27	6	346	20	95	52	18
Deaths	2	—	2	—	—	8	—	2	—	—
Dysentery	84	12	21	—	—	300	25	47	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	3	—	—	2	—	—	—	—
Deaths		1					—			
Erysipelas			21	8	1			40	3	—
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				74					60	
Deaths	34	5	16	15	2	51	7	6	13	5
Measles*	3,299	350	105	34	4	1,681	61	33	8	3
Deaths	2	—	—	—	—	—	—	1	—	—
Ophthalmia neonatorum	58	2	15	1	—	59	3	20	—	—
Deaths										
Paratyphoid fever	13	—	—	—	—	6	—	2(B)	—	2(B)
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	298	18	8	7	—	251	13	2	3	1
Deaths (from influenza)†	3	—	—	—	—	4	—	—	—	—
Pneumonia, primary			105	18				87	10	
Deaths		18		3	5		17		7	2
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	18	2	2	2	—	16	—	2	2	3
Deaths		—					1			
Puerperal fever		2	5		—		2	14		—
Deaths										
Puerperal pyrexia‡	149	9	9	2	—	116	7	16	2	1
Deaths		—					—			
Relapsing ever	—	—			—	—	—			—
Deaths										
Scarlet fever	707	60	118	16	14	937	57	154	19	23
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid ever	89	1	2	10	—	6	1	4	3	4
Deaths	—	—	—	1	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,910	121	29	140	28	930	41	26	16	4
Deaths	7	—	1	—	—	9	1	1	—	1
Deaths (0–1 year)	301	42	52	32	10	263	38	33	28	19
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,599	550	509	159	95	3,668	555	478	153	113
Annual death rate (per 1,000 persons living)			11·2	10·2				10·9	9·9	
Live births	7,858	1227	970	369	238	5,926	733	748	377	264
Annual rate per 1,000 persons living			19·5	23·6				15·0	24·3	
Stillbirths	261	28	40			193	16	19		
Rate per 1,000 total births (including stillborn)			40					25		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Letters, Notes, and Answers

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ANY QUESTIONS?

Hydrorrhoea Gravidarum

Q.—*What causes spontaneous leakage of liquor amnii between the twentieth and thirtieth weeks of pregnancy? What are the prospects of foetal survival? Can the present apparent prevalence of the condition be explained?*

A.—Leakage of liquor amnii implies rupture of the membranes, and when it occurs during pregnancy is to be regarded as accidental, although it might be associated with an inherent weakness of the membranes or lack of cervical support due to a previous laceration or high amputation. There is no evidence to suggest that this accident is more frequent now than formerly.

When the membranes rupture during pregnancy the outlook for the foetus is poor, because abortion or premature labour nearly always occurs within a few days. However there are cases recorded in which the pregnancy has continued for as long as 50 to 120 days afterwards and the child has survived. One possibility is for the membranes to rupture and then retract from around the foetus, which thereafter develops outside them (*grossesse extramembraneuse*). This is accompanied by a continuous or intermittent discharge of liquor during the pregnancy and the child rarely survives, since it tends to be born prematurely and in any case is feeble and often deformed.

Another possibility is that the fluid discharged is not liquor amnii but an unusually heavy secretion of the uterine glands which tracks down between the decidua vera and the decidua capsularis. This condition is rare and is supposed to be associated with some type of decidual endometritis. Its pathology is extremely doubtful, and it is possible that all cases described as such have in fact been examples of *grossesse extramembraneuse*. In any case abortion and premature labour are again common although not inevitable. The continued discharge of fluid from the uterus during pregnancy—liquor or otherwise—is usually called hydrorrhoea gravidarum.

Finally, the possibility that the fluid is urine, the patient suffering some lack of control over the bladder, should not be overlooked.

Penicillin for Pregnant Syphilitic

Q.—*A patient with syphilis contracted five months ago became pregnant at the time of infection. Treatment with N.A.B. and bismuth was begun at the 14th week, since when a total of 1.9 g. of N.A.B. and 1.5 g. of bismuth has been given. As I am anxious to combine penicillin with routine arsenical therapy please suggest total dosage and duration of penicillin treatment. Admission to hospital for three-hourly injections is impossible.*

A.—The aim should be to administer 4,200,000 Oxford units of penicillin; these may be given in doses of 300,000 units intramuscularly once or twice daily, and the period of treatment will therefore be 7 or 14 days. Arsenic and bismuth should be continued at least to the termination of pregnancy, and a course of treatment should be prescribed during any subsequent pregnancy. It has been suggested that penicillin may tend to cause abortion, but the consensus is against this; nevertheless the possibility should be kept in mind. Admission to hospital is unnecessary for the penicillin injections.

Nicotine and Nicotinic Acid

Q.—*Is there any chemical and/or pharmacological similarity between nicotine and nicotinic acid? Why have the Americans given the name niacin to nicotinic acid?*

A.—Nicotine and nicotinic acid have some chemical similarity inasmuch as both are derivatives of pyridine. Nicotine is a combination of pyridine with methylpyrrolidine. Nicotinic acid is pyridine with a COOH group attached at the same point as the methylpyrrolidine is attached in nicotine. There is no pharmacological similarity between nicotine and nicotinic acid. "Niacin" has been chosen by the compilers of *New and Non-official Remedies* as a name in which there are no proprietary rights. It is partly made up of the first two letters of each of the two words "nicotinic acid." The word "niacin" seems scarcely necessary, and was apparently introduced because of the possible association in the lay mind of nicotinic acid with the poisonous substance nicotine.

Treatment by Fibrolysin

Q.—*Please give an account of treatment with fibrolysin of Dupuytren's contracture of the palmar fascia.*

A.—Treatment of Dupuytren's contracture by injections of fibrolysin has not proved satisfactory. Fibrolysin is a preparation containing sodium salicylate and allyl thiourea; when administered hypodermically it is supposed to have a softening or solvent effect on scar tissue. A solution of 10 parts of the drug, 20 of glycerin, and 70 of water is suitable. The dose is from 0.5 ml. up to 3 or 4 ml. of the solution given hypodermically at intervals of a few days. Experience has not confirmed the claims at first made for it.

Bite by Dog with Tetanus

Q.—*A man was bitten by a tetanic dog. I gave him 3,000 units of A.T.S. and repeated it in 48 hours. Was this necessary?*

A.—Tetanus is an uncommon infection in the dog, and the suggestion that the bite of a dog with tetanus is potentially more dangerous than that of a normal dog has little to support it. The infection is due to the neurotropic toxin of the organism, and this material would not be transmitted in the dog-bite. However, dogs, like other domestic animals, frequently carry tetanus spores in the alimentary canal, and it is therefore a wise precautionary measure to give tetanus antitoxin to any person who has been bitten by a dog. The usual dose is 3,000 units, and this may be repeated a week later if the wound has not healed by then.

Experimental Helminthic Infection

Q.—*With a view to finding an effective anthelmintic against Taenia solium and Enterobius vermicularis I intend experimenting with rabbits. How may these animals be infected—by injection of ova or the adult worm?*

A.—To obtain infection of rabbits with adult *T. solium* it is necessary to feed them on viable and complete cysticerci obtained from measly pork or artificially fed animals; it would be essential to see that each cysticercus was swallowed whole without being bitten. A supply of cysticerci might be obtained by feeding rabbits with gravid segments of *T. solium* broken up in their food, or with mature *Taenia* ova teased out of gravid segments. These would produce cysticerci, which could then be fed to other rabbits. It is doubtful if the rabbit is a suitable host for adult *T. solium*.

The best way to infect rabbits with *Enterobius vermicularis* would probably be to obtain gravid female worms and break them up in the rabbit's food, or tease out the ova and add them to the food.

Therapeutic Value of Yeasts

Q.—*Have the various yeasts—viz., brewer's yeast, baker's yeast, and "food yeast"—different therapeutic values?*

A.—All yeasts are valuable as a source of protein. In considering their therapeutic value, however, we usually have in mind their action either as live organisms or as a source of vitamins. Live yeast is sometimes taken by the public as a

homely remedy for skin eruptions, but it is doubtful whether there is any scientific justification for this, and, if there is, whether any one type of yeast is better than others. The vitamin contents of yeast survive drying or extraction, and vary according to both the type of yeast and the medium on which it has been grown. Vitamin B_1 shows by far the widest range of variation. According to J. C. Somogyi, writing recently in Supplement No. 4 of the *Zeitschrift für Vitaminforschung*, brewer's yeast, which is a strain of *Saccharomyces cerevisiae*, contained 60 to 80 i.u. of vitamin B_1 per gramme of dried material (10% water) when grown on a wort of malt and hops. Baker's yeast, another strain of the same organism, and grown on molasses, contained 20 i.u. of vitamin B_1 per gramme dried weight. In contrast, preparations of *Torula utilis*, which is used for the production of food yeast, contained only 8 i.u. per gramme dry weight when grown in a solution of wood sugar (xylose) and mineral salts. In specially cultivated yeasts concentrations of 250 i.u. of vitamin B_1 per gramme dry weight have been attained. The variations in other members of the vitamin-B complex appear to be relatively slight, but yeasts differ widely in their contents of ergosterol (provitamin D) and of lecithin. There is also a considerable range in flavour, which may sometimes be very bitter, and probably also in the laxative action which has been reported by certain workers who have conducted human trials with specimens of food yeast.

Tuberculous Allergy and Immunity

Q.—*Could you briefly explain the significance of difference between allergy and immunity arising (in a child) from tuberculosis?*

A.—Allergy is a state of hypersensitiveness produced by tuberculous infection, manifested by an acute inflammatory reaction sometimes going on to necrosis when tuberculin or tubercle bacilli are introduced into the tissues. The element in the tubercle bacillus which elicits this response is a protein. The change yielding this result is in the tissues themselves; it appears not to be dependent on an antibody in the blood, and the condition is certainly not, as in some other forms of hypersensitiveness, passively transferable. Tuberculous allergy may be regarded as a protective mechanism—protective, that is, against reinfection—but it is not the sole basis of immunity. There is a form of immunity distinct from it and presumably dependent, as in immunity to other bacterial infections, on the presence of antibodies in the blood. Experiments have been made in which the two conditions were dissociated, and the desensitized animal has been found to have gained rather than lost in capacity to resist the infection. Although the significance of such experiments has been questioned and the whole subject is somewhat controversial, few would deny that the two conditions are distinct. Immunity operates in the usual way, disposing of the invaders without undue disturbance; allergy, except in so far as it is positively harmful, has a purely localizing function.

Coronary Thrombosis and High Altitudes

Q.—*A patient aged 62 had a coronary thrombosis 3½ years ago. He made a good recovery, and his blood pressure is now 140/75. He has a tendency to get short of breath on moderate exertion. Are there any contraindications to his spending a vacation at an altitude of 5,000–6,000 feet (1,500–1,800 m.)?*

A.—The fact that this patient had a coronary thrombosis at the age of 58 implies the existence of coronary sclerosis. As he is not troubled with angina of effort and there is no hypertension the prognosis may be regarded as good, although the slight reduction of effort tolerance indicates some impairment of the myocardium. At an altitude of 5,000–6,000 feet the heart has a little extra work to do in maintaining the oxygenation of the body. Coronary syndromes are among the least predictable, but I believe that if no very active pursuits are undertaken the patient will suffer no harm from a vacation at this altitude. He will probably find that his tendency to breathlessness on exertion is a little more noticeable. If he should experience any hint of a return of pain in the chest he should curtail the vacation and return to lower altitudes.

INCOME TAX

Appointment: Car Expenses

R. B. is entitled to a car allowance, as assistant medical officer of health, but he regards it as inadequate. (At present he uses a car supplied by his employers but intends to buy one shortly.) Can he refuse the car allowance and claim for tax purposes the initial and depreciation allowances?

*** The statutory rule applicable is that R. B. can deduct an expense if it is incurred wholly, exclusively, and necessarily in the performance of his duties. Any elements in the expense attributable to private use or the possession of a car superior to one which is reasonably necessary would not be allowable. If he receives an allowance from his employers the Revenue Authorities are, not unnaturally, reluctant to regard it as inadequate, and, though R. B. would be entitled to claim the excess of his allowable expenses (including depreciation, etc.) over the amount receivable from his employers, they might require the facts to be proved on personal appeal before the Income Tax Commissioners. If he declines the car allowance—whether he receives additional pay for that reason or not—the case can be more easily put, but the essential facts would remain substantially the same.

LETTERS, NOTES, ETC.

Treatment of Phlebitis

Dr. R. ROWDEN FOOTE writes: Under your "Any Questions?" section (Aug. 17, p. 251) you are asked for the modern treatment of phlebitis. I would like to suggest that the reply excludes some of the modern views on phlebitis. First, regarding phlebitis of the superficial veins: since the work of Heyerdale (1943) and many others both before and after it has been accepted that this condition should in the majority of cases be taken to be a direct indication for a high resection of the internal saphenous vein. Provided that the inflammation has not reached the last few inches of the vein the operation will produce a dramatic resolution of the inflammatory process. Secondly, when this ideal treatment cannot be offered to the patient I agree that "the limb should be enclosed in adhesive bandages to well above the upper limit of the phlebitis." No mention however is made of the desirability of a sorbo rubber pad over the fossa ovalis. This precaution is an important one. Turning to the condition of deep vein thrombosis, you state that "almost all clinicians still favour a long period of immobilization." Surely with the advent of dicumarol and heparin the majority of modern clinicians have altered their views? I agree that these cases should be kept in bed during the acute and active stage; but they should not be denied the therapeutic benefits both of penicillin and the sulpha series of drugs, neither of which receives notice in your reply.

The Itchy Patient

Dr. S. W. ALLWORTHY writes: The interesting article on The Itchy Patient by Drs. Henry MacCormac, P. H. Sandifer, and A. M. Jelliffe (July 13, p. 48) reminds me of the following: A psychologically normal and elderly patient when suffering from severe and intolerable itching reacted by saying to her husband that, should she go to Hell, she hoped that she would not be tortured by itching. This was rather in contrast to the more hopeful outlook of Oliver Goldsmith's Scotchman who refused to be cured of the itch because it made him unco' thoughtful of his wife and bonny Inverary.

Children in Nurseries

Mrs. G. M. WOOLF writes: The Report of the Medical Women's Federation on the Health of Children in Wartime Day Nurseries (Aug. 17, p. 217) will be studied with the utmost interest, and especially by those who have faith in day nurseries and wish them well. Thirty-five years ago I became a voluntary helper in a voluntary nursery, and I remember how concerned I was to find that four large handkerchiefs were in common use for the sixty children. I gathered together my courage (I was a novice and just out of my 'teens) and approached the Chairman of the Nursery Committee. Fortunately for the children and myself she was understanding and sympathetic, and they were each provided at once with a clean handkerchief every day. A simple precaution useful against respiratory infection which one sees adopted in far too few nurseries and nursery schools is that during the afternoon rest the children's stretcher cots should be placed in alternate positions, i.e., the head of one child should lie opposite to the feet of its neighbour.

Disclaimer

Dr. F. HIMMELWEIT writes from St. Mary's Hospital, Inoculation Department, to say that a recent reference to himself and his work on influenza, appearing in a London newspaper, was not inspired by him, and that most of the facts as presented there bear no relation to the true situation. He regards this kind of publicity as most undesirable.